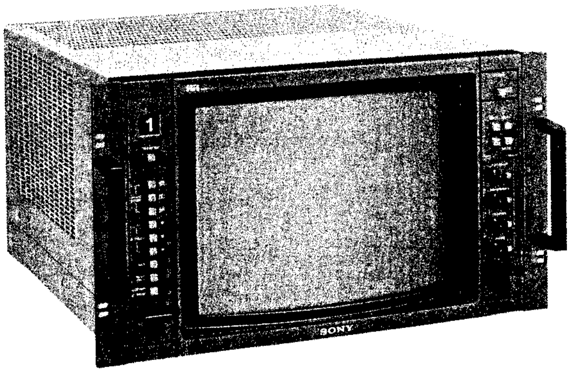
SONY®

TRINITRON® COLOR VIDEO MONITOR

# BVM-1410P
# BVM-1410PM



HFR TRINITRON

## OPERATION AND MAINTENANCE MANUAL

4th Edition

Serial No. 2001066 and Higher (BVM-1410P)
(EBU N-10 LEVEL)
Serial No. 2000021 and Higher (BVM-1410PM)

Warning—This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Important—To insure that the complete system (including this peripheral) is capable of complying with the FCC requirements, it is recommended that the user make sure that the individual equipment of the complete system has a label with one of the following statements.
"This equipment has been tested with a Class A Computing Device and has been found to comply with Part 15 of FCC rules."
—or—
"This equipment complies with the requirements in Part 15 of FCC rules for a Class A Computing Device."
—or equivalent.

**For the customers in Canada**

This apparatus complies with the Class A limits for radio noise emissions set out in Radio Interference Regulations.

**Pour les utilisateurs au Canada**

Cet appareil est conforme aux normes Classe A pour bruits radioélectriques, spécifiés dans le Règlement sur le brouillage radioélectrique.

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### VORSICHT!!

Hinweis für den Benutzer
Das Gerät ist nicht für den Einsatz in Bildschirmarbeitsplätzen, vorgesehen.

### CAUTION!!

**DO NOT USE THE EXTERNAL DEGAUSSER TO DEMAGNETIZE THE SCREEN.**
**BE SURE TO USE THE DEGAUSS SWITCH ON THE FRONT PANEL.**

### ATTENTION AU COMPOSANT AYANT RAPPORT A LA SÉCURITÉ!!

**LES COMPOSANTS IDENTIFIÉS PAR UN TRAMÉ ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES EXPLOSÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DES SUPPLÉMENTS PUBLIÉS PAR SONY. LES RÉGLAGES DU CIRCUIT QUI SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNMENT SONT IDENTIFIÉS DANS CE MANUEL. SUIVRE LES PROCÉDURES QUAND LES COMPOSANTS CRITIQUES SONT REMPLACÉS OU LE FONCTIONNEMENT IMPROPRE EST SUSPECTÉ.**

### ATTENTION!!

**NE PAS UTILISER DE DÉMAGNÉTISEUR EXTÉRITUR POUR DÉMAGNÉTISER L'ÉCRAN.**
**UTILISER LA TOUCH DE DÉMAGNÉTISATION (DEGAUSS) SUR LE PANNEAU FRONTAL.**

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# SECTION 1
# OPERATION

## 1-1. OUTLINE

### 1-1-1. Features

The BVM-1410P/PM is a color video monitor designed for critical evaluation of video signals in broadcasting stations and production houses.

**High resolution picture**
The Super Fine Pitch Trinitron picture tube (0.25 mm aperture grille) gives a high resolution, high contrast picture. Horizontal resolution is more than 700 TV lines at the center of the picture.

**Stabilized color temperature**
The newly-developed beam control circuit maintains the color temperature constant for a long period of time.

**Split screen for precise picture confirmation**
The lower half of the picture can be displayed in monochrome mode while the upper half is displayed in color mode. This facilitates confirmation of the luminance and chrominance channels, evaluation of the noise in chrominance or luminance channel, etc.

**Blue only mode for precise evaluation of noise component**
In blue only mode, an apparent monochrome display is obtained with all three control grids driven with a blue signal. This facilitates color saturation and phase adjustments and observation of VTR noise.

**Easy and precise convergence adjustment**
The convergence can be adjusted at 15 points of the screen. This system facilitates adjustment of the peripheral areas of the screen.

**Other features**

- Three color standards selectable using the optional plug-in type decoder boards
- Picture set-up function facilitating adjustment of the monitor reference black for the black level of an incoming video signal
- Pulse cross function for simultaneous checking of the horizontal and vertical sync signals or VITS (Vertical Interval Test Signal)
- Built-in crosshatch and 100% white signal generators facilitating monitor set-up
- VITC (Vertical Interval Time Code) display possible using the optional VITC reader board
- Two pull-out drawers containing convergence, white balance and preset controls, and other function selectors
- Auto and manual degaussing
- Three-position AFC switch
- Overdrive protection circuit to protect against picture tube damage
- EIA standard 19-inch rack mounting possible using the optional rack mount kit

## 1-1-2. Options

| Model No. | Product name | Board name | Use |
|---|---|---|---|
| BKM-1410 | NTSC ADAPTOR | BC | Decoder board for NTSC color system |
| BKM-1411 | NTSC COMB ADAPTOR | BB | Comb filter board for NTSC color system |
| BKM-1412 | NTSC COMB ADAPTOR | BT | Dynamic Comb filter board for NTSC color system |
| BKM-1420 | PAL ADAPTOR | BD | Decoder board for PAL color system |
| BKM-1421 | PAL-M ADAPTOR | BM | Decoder board for PAL-M color system |
| BKM-1422 | PAL COMB ADAPTOR | BT | Comb filter board for PAL color system |
| BKM-1430 | SECAM ADAPTOR | BE | Decoder board for SECAM color system |
| BKM-1440 | RGB/COMPONENT ADAPTOR | BF | Decoder outputs of RGB or component signals |
| BKM-1460 | VITC ADAPTOR | BL | Reader of Vertical Interval Time Code |
| BKM-1470 | SAFE AREA DISPLAY | BQ | For displaying the safe area |
| BKM-1480 | BLACK LEVEL SIGNAL GENERATOR | BS | For generating black level signals |
| BKM-1450 | AUTO SET-UP ADAPTOR | BN<br>BO | Auto chroma/phase adjustment, auto white balance adjustment, selection of color temperature |
| BKM-2085 -14 | DIGITAL 4:2:2 SERIAL INPUT KIT | BA3<br>BV | For input of the component digital video signal |
| BKM-2090 -14 | D-2 SERIAL INPUT KIT | BA3<br>BU | For input of the composite digital video signal |
| BKM-1400 | RACK MOUNT KIT | – | For EIA standard 19 inch rack mounting |

**Combinations of the optional boards**

The BVM-1410P is supplied with the BD circuit board (PAL color system decoder), while the BVM-1410PM is supplied with the BM circuit board (PAL-M color system decoder).

You can choose up to five optional B boards above including BD or BM. The combinations of the B boards are limited depending on which boards can be accepted for each board compartment.

You can choose up to five optional B boards above

| Board name (Function) | Compartment name | | | | |
|---|---|---|---|---|---|
| | B5 | B4 | B3 | B2 | B1 |
| BB (NTSC COMB FILTER) | X | O | O | O | O |
| BT (NTSC COMB FILTER) | O | O | O | O | O |
| BT (PAL COMB FILTER) | O | O | O | O | O |
| BC (NTSC DECODER) | O | O | O | O | O |
| BD (PAL DECODER) | O | O | O | O | O |
| BE (SECAM DECODER) | O | O | O | O | O |
| BM (PAL-M DECODER) | O | O | O | O | O |
| BF (RGB/COMPONENT) | X | X | O | X | X |
| BL (VITC) | X | X | X | O | X |
| BQ (SAFE AREA DISPLAY) | X | △ | X | O | X |
| BS (BLACK LEVEL SIGNAL GENERATOR) | O | O | O | O | O |
| BN (AUTO SET-UP<br>BO ADAPTOR) | O | O | X | X | X |
| BV (Digital 4:2:2 serial interface) | X | X | X | X | O |
| BU (D-2 serial interface) | X | X | X | X | O |

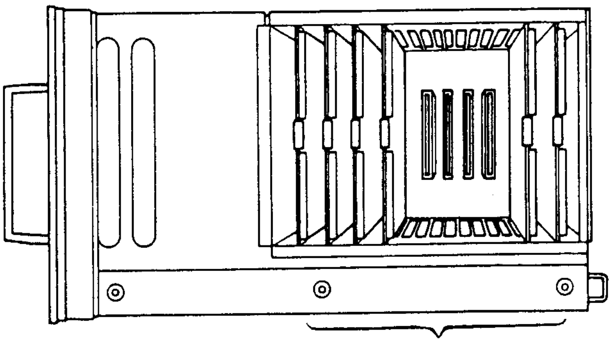
O: acceptable
X: not acceptable
△: acceptable but the switch or control settings on the sub control panels cannot control the display.

**Notes**

- Insert BA, BG, BH, BI and BJ boards into their respective compartments of the same name.
- Do not leave B5 compartment blank. Insert one of the boards specified in the above table. If no board is inserted, the luminance/chrominance or luminance channel will not be activated in composite signal mode.
- Do not insert BD (PAL DECODER) and BM (PAL-M DECODER) boards simultaneously. This causes malfunction of the monitor.
- Do not insert BB (NTSC COMB FILTER) and BT (NTSC COMB FILTER) boards simultaneously. This causes malfunction of the monitor.

For details on installation, refer to the operation and maintenance manual of the optional board.

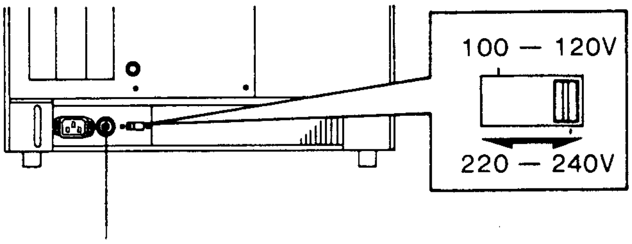
Right view (with the cabinet removed)



## 1-2. VOLTAGE SELECTION

The monitor operates on either 220 - 240 or 100 - 120V AC. Before connecting the unit to an AC outlet, make sure the voltage selector at the rear of the unit is set to the local power line voltage. Change the position of the selector if necessary.
The factory preset operating voltage of each model is as follows.

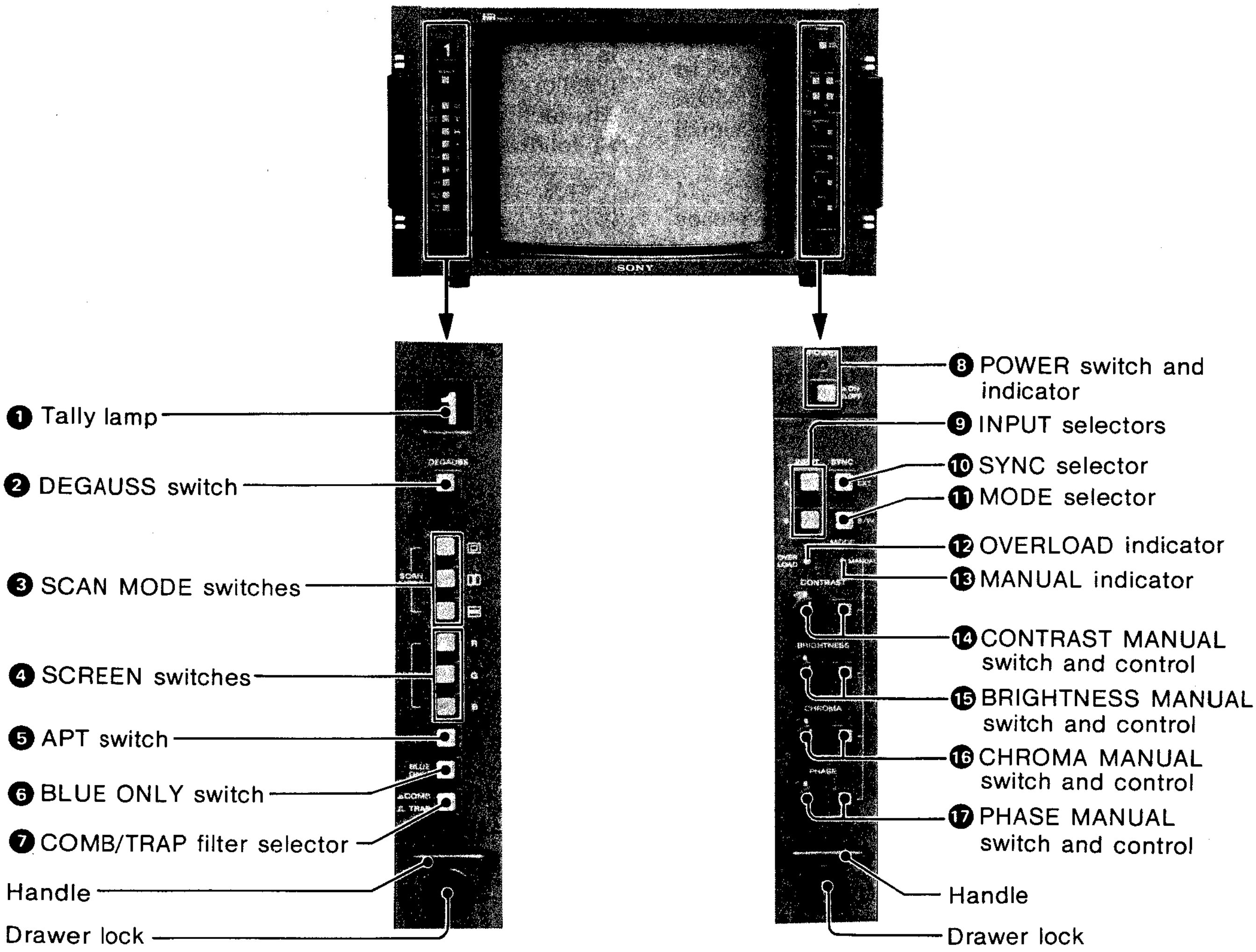
| | |
|---|---|
| BVM-1315, 1415PM | 100—120V |
| BVM-1415P | 220—240V |



**Note**
Use a T2A/250V fuse for 220 - 240V AC operation, and a 4A/125V fuse for 100 - 120V AC operation. The appropriate fuse is installed at the factory in accordance with the voltage presetting. If you change the voltage selector setting, replace the fuse with an appropriate one.

# 1-3. LOCATION AND FUNCTION OF CONTROLS

## 1-3-1. Front Panel



SONY
❶ Tally lamp
❷ DEGAUSS switch
❸ SCAN MODE switches
❹ SCREEN switches
❺ APT switch
❻ BLUE ONLY switch
❼ COMB/TRAP filter selector
Handle
Drawer lock
❽ POWER switch and indicator
❾ INPUT selectors
❿ SYNC selector
⓫ MODE selector
⓬ OVERLOAD indicator
⓭ MANUAL indicator
⓮ CONTRAST MANUAL switch and control
⓯ BRIGHTNESS MANUAL switch and control
⓰ CHROMA MANUAL switch and control
⓱ PHASE MANUAL switch and control
Handle
Drawer lock

**❶ Tally lamp**

Insert one of the tally number plates 1 to 5 (supplied) when the drawer is open.

The lamp lights when No. 3 and No.8 pins of the REMOTE connector on the rear panel are short-circuited.

**❷ DEGAUSS switch**

When the power is turned on, automatic degaussing is activated.

To demagnetize the screen manually, press this switch momentarily with the power turned on.

Wait for 5 minutes or more before activating degaussing again.

**❸ SCAN MODE switches**

⊡ **(underscan):** Depress this switch for underscanning. The display size is reduced by approximately 3% so that four corners of the raster are visible.

◫ **(horizontal delay):** Depress this switch to observe the horizontal sync signal. The picture is shifted horizontally and the horizontal sync signal is displayed in the left quarter of the screen. Picture brightness is automatically increased for easy observation.

⊟ **(vertical delay):** Depress this switch to observe the vertical sync signal. The picture is shifted vertically and the vertical sync signal is displayed near the center of the screen. Picture brightness is automatically increased for easy observation.

- A pulse cross is displayed by depressing both the ◫ and ⊟ switches.
- To resume normal scanning, press to release the depressed switches.

### ❹ SCREEN switches

The R, G and B switches turn the red, green and blue beams respectively on and off. To turn off the beam, depress the switch. To turn it on again, press to release it.

### ❺ APT (aperture) switch

Normally keep this switch released. A flat frequency response is obtained.
For aperture correction, depress this switch and adjust the APT control ㉒ . The boost frequency, 4.5 MHz or 6.5 MHz, can be selected with the S1 switch on the BG board.
At the 4.5 MHz position, the frequency response can be adjusted continuously with up to 6 dB boost at 4.5 MHz for subjective enhancement of the displayed picture.
At the 6.5 MHz position, the frequency response can be adjusted continuously with up to 6 dB boost at 6.5 MHz for compensation of the aperture loss of the CRT.

### ❻ BLUE ONLY switch

Normally keep this switch released. Depress this switch to turn off the red and green signals. A blue signal is displayed as an apparent monochrome picture on the screen. This facilitates CHROMA and PHASE control adjustments and observation of VTR noise.

### ❼ COMB/TRAP filter selector

This selector is effective for the NTSC color system only, with the BKM-1410 NTSC adaptor and the BKM-1411 or BKM-1412, NTSC comb adaptor installed.
Depress the selector to activate the comb filter (⊓COMB). Press to release it for the trap filter (∏TRAP).
When the BKM-1411 or BKM-1412, NTSC comb adaptor is not installed, or when a color system other than NTSC is selected, the trap filter is always activated regardless of this selector setting.

### ❽ POWER switch and indicator

Depress this switch to turn on the power. The POWER indicator will light. To turn the power off, press the switch again.

### ❾ INPUT selectors

Select the input signal.

**A:** To monitor the signals connected to the VIDEO A INPUT connector, depress this selector.

**B:** To monitor the signals connected to the VIDEO B INPUT connector, depress this selector and press the INPUT SELECT "B" button inside the right drawer.

For details on input selection, refer to "INPUT SELECT buttons" on page 1-11.

### ❿ SYNC selector

Normally keep this selector released (INT). The monitor operates on the sync signal from the displayed composite video signal. To operate the monitor on an external sync signal supplied from the EXT SYNC connector on the rear panel, depress the selector (EXT).

### ⓫ MODE selector

Normally keep this selector released (AUTO). Color or monochrome mode is automatically selected according to the presence or absence of color burst. Depress the selector (MONO) to display the monochrome picture.

### ⓬ OVERLOAD indicator

This indicator lights to warn of overdrive of the CRT.

### ⓭ MANUAL indicator

This indicator lights when any of the MANUAL switches ⓮ through ⓱ is depressed.

### ⓮ CONTRAST MANUAL switch and control

When this switch is in the released position, the contrast preset with the PRESET CONTRAST control inside the right drawer is obtained. To adjust the contrast manually, depress this switch and turn this control.

### ⓯ BRIGHTNESS MANUAL switch and control

When this switch is in the released position, the brightness preset with the PRESET BRIGHTNESS control inside the right drawer is obtained. To adjust the brightness manually, depress this switch and turn this control.

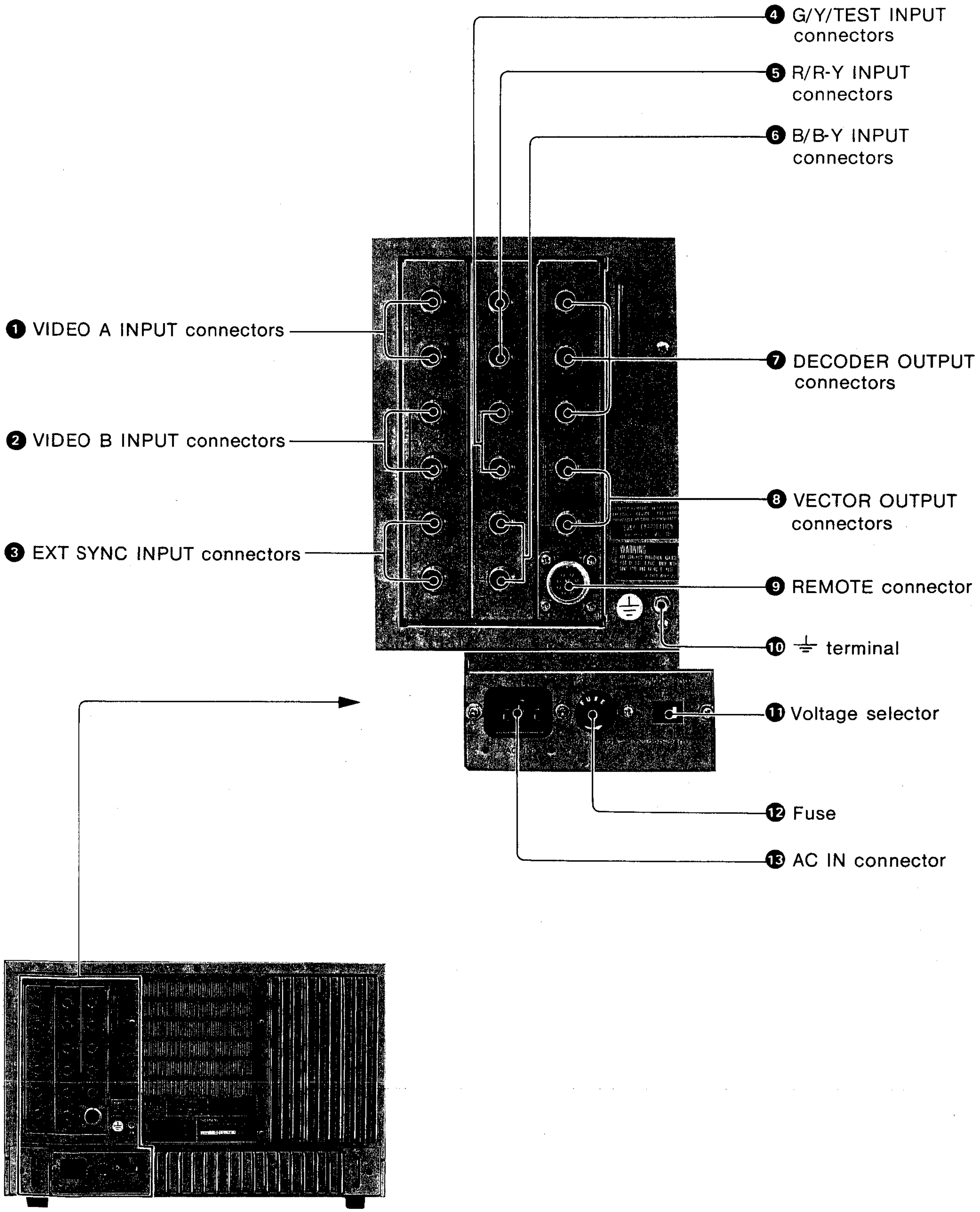
### ⓰ CHROMA MANUAL switch and control

When this switch is in the released position, the color saturation preset with the PRESET CHROMA control inside the right drawer is obtained. To adjust the color saturation manually, depress this switch and turn this control.

### ⓱ PHASE MANUAL switch and control

When this switch is in the released position, the subcarrier phase preset with the PRESET PHASE control inside the right drawer is obtained. To adjust the subcarrier phase manually, depress this switch and turn this control.
(This control is not effective when the COLOR STANDARD PAL button is pressed and the PAL D/S selector is set to D, or when the COLOR STANDARD SECAM button is pressed.)

## 1-3-2. Rear Panel


❹ G/Y/TEST INPUT connectors
❺ R/R-Y INPUT connectors
❻ B/B-Y INPUT connectors
❶ VIDEO A INPUT connectors
❼ DECODER OUTPUT connectors
❷ VIDEO B INPUT connectors
❽ VECTOR OUTPUT connectors
❸ EXT SYNC INPUT connectors
❾ REMOTE connector
❿ ⏚ terminal
⓫ Voltage selector
⓬ Fuse
⓭ AC IN connector

### ❶ VIDEO A INPUT connectors (BNC)

### ❷ VIDEO B INPUT connectors (BNC)

Accept video signals. Use one connector for input and the other for loop-through output.
When the loop-through output is not used, attach a 75-ohm terminator.

### ❸ EXT SYNC INPUT (external sync input) connectors (BNC)

Accept sync signals.
Use one connector for input and the other for loop-through output.
When the loop-through output is not used, attach a 75-ohm terminator.

### ❹ G/Y/TEST INPUT connectors (BNC)

### ❺ R/R-Y INPUT connectors (BNC)

### ❻ B/B-Y INPUT connectors (BNC)

Input an RGB, component (Y, R-Y, B-Y) or test signal. The input signal can be selected with the INPUT SELECT buttons on the sub control panel. Use one connector for input and the other for loop-through output. When the loop-through output is not used, attach a 75-ohm terminator.

### ❼ DECODER OUTPUT connectors (BNC)

These connectors provide RGB or component (Y, R-Y, B-Y) outputs decoded from the signals displayed on the screen, only when the BKM-1440 RGB/component adaptor is installed.
The RGB or component outputs are selected with the S1 selector on the BF board of the BKM-1440 kit.

**Quick reference for output selection**

| Output signal / Operation | Component | RGB |
|---|---|---|
| S1 selector on BF board | Lower position | Upper position |
| Input signal | Encoded VIDEO A, VIDEO B, TEST or component | |
| Output connectors | DECODER OUTPUT (R/R-Y, G/Y, B/B-Y) | |

**Notes**

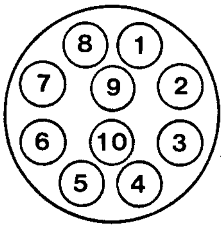
- The DECODER OUTPUT connectors do not provide the correct RGB outputs from the displayed RGB signals. For RGB outputs, use the loop-through outputs of the R/G/B input connectors.
- The outputs from non-composite signals are also non-composite. Supply sync signals from the EXT SYNC INPUT connector if required.
- The output signals are affected by the CHROMA, PHASE and APERTURE controls and MATRIX switch.
- The color killer is not activated for output signals.

### ❽ VECTOR OUTPUT connectors (BNC)

Provide R-Y and B-Y demodulated chroma outputs. Connect the Tektronix 1424 display unit or equivalent to provide vector displays. Connect the R-Y connector to the Y input of the display unit, and the B-Y connector to the X input.

### ❾ REMOTE connector (10-pin)

Use the supplied 10-pin connector.



To enter remote control mode, short-circuit pin No. 5 with pin No. 8.
The relationship between the function and pin connections in remote control mode are shown below.

| Function | | | Pin No. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| INPUT* | SYNC* | MODE* | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| VIDEO A | INT | AUTO | O | O | — | O | S | — | — |
| | | MONO | S | O | — | O | S | — | — |
| | EXT | AUTO | O | O | — | S | S | — | — |
| | | MONO | S | O | — | S | S | — | — |
| VIDEO B | INT | AUTO | O | S | — | O | S | — | — |
| | | MONO | S | S | — | O | S | — | — |
| | EXT | AUTO | O | S | — | S | S | — | — |
| | | MONO | S | S | — | S | S | — | — |
| VITC OFF** | | | — | — | — | — | — | S | — |
| VITC HOLD** | | | — | — | — | — | — | O | S |
| TALLY ON | | | — | — | S | — | — | — | — |

S: Short-circuit with pin No. 8.
O: Open
—: Either S or O.

* Remote control operations have priority over the MODE, INPUT and SYNC selectors on the front panel.
** To remotely control the VITC display, first set the VITC switch inside the right drawer to ON and then short-circuit pin 6 or 7 with pin 8. (For VITC display, the optional BKM-1460 is required.)

**Note**

For remote control operations, be sure to depress the INPUT SELECT "B" button inside the right drawer.

### ❿ Ground (⏚) terminal

Connect to the system ground, if necessary.

**⑪ Voltage selector**

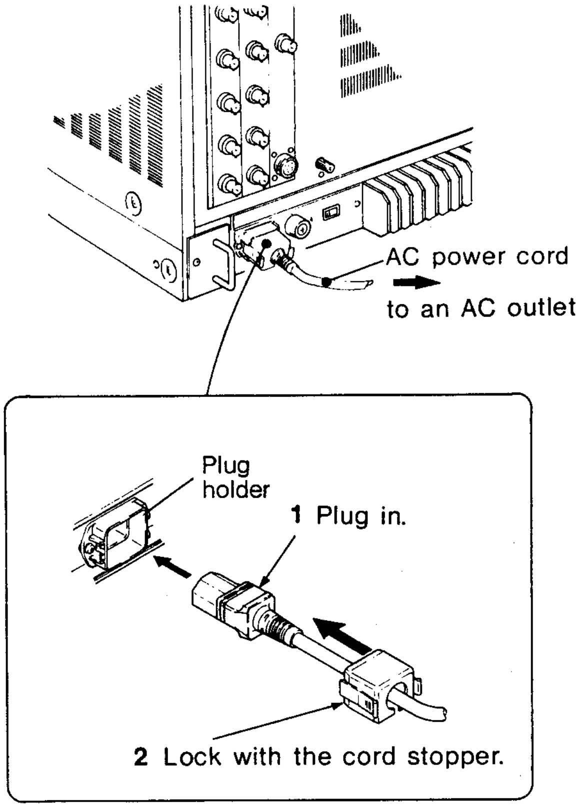
Set to the local power line voltage, 220 – 240V AC or 100 – 120V AC.

**⑫ Fuse**

Use a T2A fuse for operation on 220 – 240V AC, or a 4A fuse for operation on 100 – 120V AC.

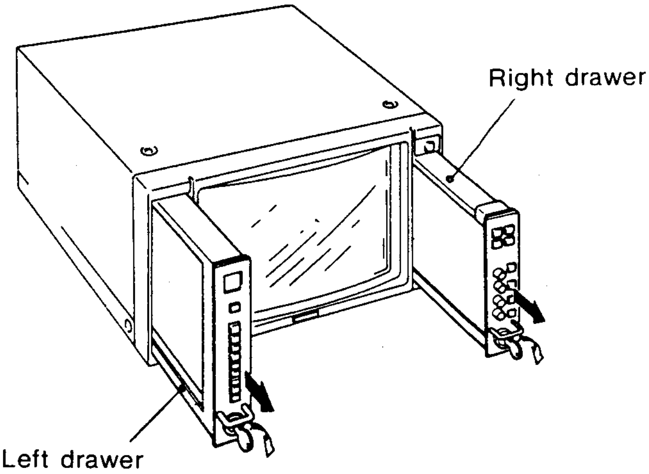
**⑬ AC IN connector**

Connect the supplied AC power cord here and secure it with the supplied cord stopper, if required.


AC power cord
to an AC outlet
Plug holder
1 Plug in.
2 Lock with the cord stopper.

## 1-3-3. Sub Control Panels inside the Drawers

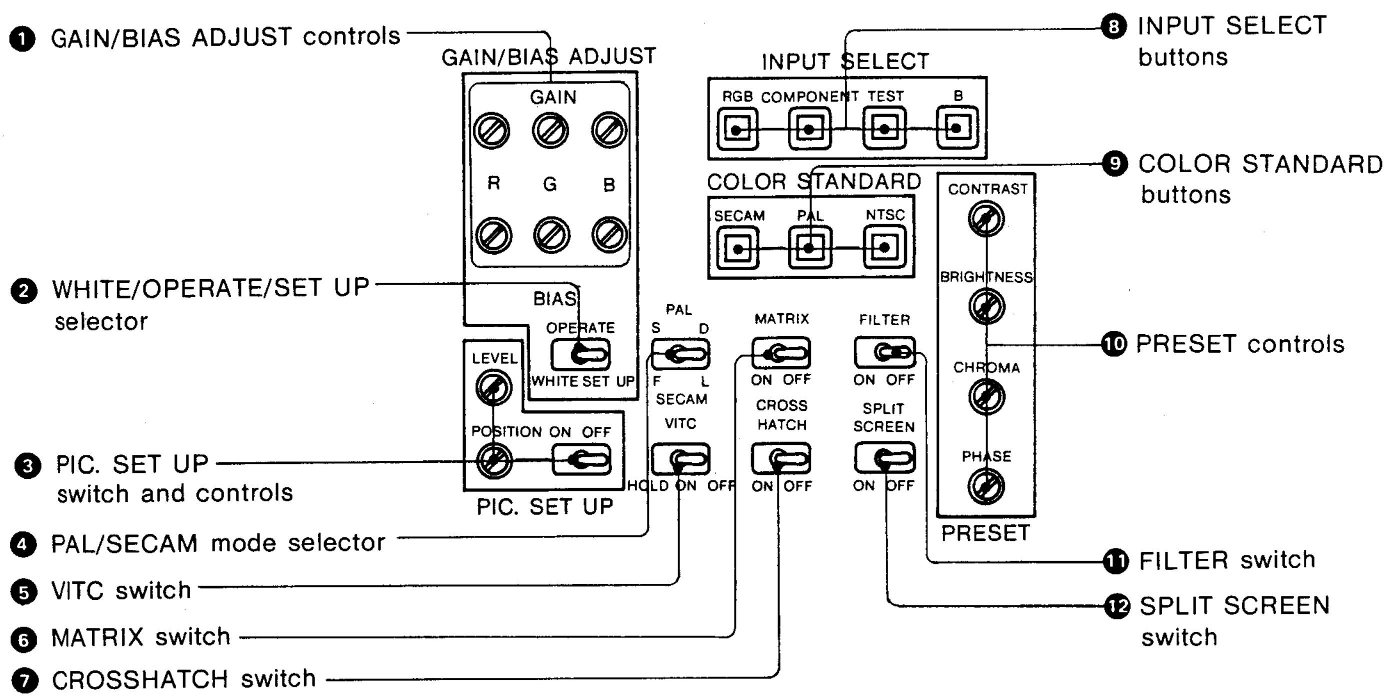
Insert the supplied key into the keyholes of the drawer lock, turn it 90° clockwise and pull the drawer out.


Right drawer
Left drawer

- Adjust the controls on the sub control panels when the monitor is fully warmed up. Warm-up time will be at least 30 minutes after the power has been turned on.
- Adjust the control using the supplied screwdriver.

## Inside the right drawer

**HB board** (Function selection and white balance adjustment section)


❶ GAIN/BIAS ADJUST controls
❷ WHITE/OPERATE/SET UP selector
❸ PIC. SET UP switch and controls
❹ PAL/SECAM mode selector
❺ VITC switch
❻ MATRIX switch
❼ CROSSHATCH switch
❽ INPUT SELECT buttons
❾ COLOR STANDARD buttons
❿ PRESET controls
⓫ FILTER switch
⓬ SPLIT SCREEN switch
GAIN/BIAS ADJUST
GAIN
R G B
BIAS
OPERATE
WHITE SET UP
LEVEL
POSITION ON OFF
PIC. SET UP
INPUT SELECT
RGB COMPONENT TEST B
COLOR STANDARD
SECAM PAL NTSC
PAL S D
F L SECAM
VITC
HOLD ON OFF
MATRIX
ON OFF
CROSS HATCH
ON OFF
FILTER
ON OFF
SPLIT SCREEN
ON OFF
CONTRAST
BRIGHTNESS
CHROMA
PHASE
PRESET

### ❶ GAIN/BIAS ADJUST controls

Used for white balance adjustment.

GAIN and BIAS controls are provided for the R (red), G (green) and B (blue) screens.

**BIAS:** Set the WHITE/OPERATE/SET UP selector to SET UP and adjust the white balance and brightness of the screen at the lowlight with these controls.

**GAIN:** Set the WHITE/OPERATE/SET UP selector to WHITE and adjust the white balance and contrast of the screen at the highlight with these controls. For details on the white balance adjustment, refer to "1-5. WHITE BALANCE ADJUSTMENT" on page 1-15.

### ❷ WHITE/OPERATE/SET UP selector

**OPERATE:** Normally set to this position for normal monitoring.

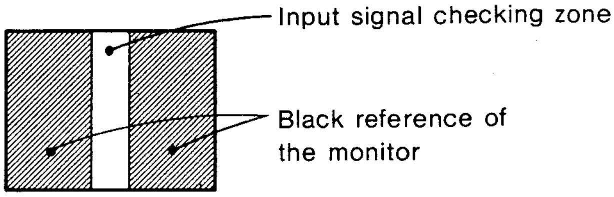
**WHITE:** When adjusting the white balance at the highlight, set to this position. Internal 100% white signal is displayed on the screen.

**SET UP:** When adjusting the white balance at the lowlight, set to this position. A horizontal white bar of approximately 1/3 the screen height is displayed.

### ❸ PIC. SET UP (picture set up) switch and controls

Used to match the black reference of the monitor with the black level of the input signal.

**ON/OFF switch:** When this switch is set to ON, a vertical picture band and the black reference of the monitor are displayed on the screen for easy level comparison.


Input signal checking zone
Black reference of the monitor

**POSITION control:** Move the position of the picture band horizontally so that the black signal of the picture is located next to the black reference area.

**LEVEL control:** Adjust this control to match the brightness of the black reference area with that of the input black signal.

### ❹ PAL/SECAM mode selector

This selector functions as the PAL D/S selector for PAL color system, and as the SECAM F/L selector for SECAM color system.

**PAL D/S selector:** Selects the demodulation mode of the PAL system, D (deluxe) or S (simple). Normally set to D.

**SECAM F/L selector:** Selects the ID signal of the SECAM system, L (line) or F (field). Normally set to L.

**❺ VITC (Vertical Interval Time Code) switch**

This switch functions only when the optional BKM-1460 VITC adaptor is installed.

**ON:** Set to this position to display the VITC.

**OFF:** To turn off the VITC display.

**HOLD:** To hold the VITC figure, press the switch momentarily to this position. To run the VITC again, press the switch to this position again.

**❻ MATRIX switch**

Normally set this switch to OFF. Set to ON to activate the matrix circuit so that the chromaticity of the displayed picture more closely approximates to that of "true" NTSC phosphors.

**❼ CROSSHATCH switch**

Set to ON to display the internal crosshatch pattern for adjusting convergence, etc.

The crosshatch pattern is synchronized to the selected composite sync signal.

**❽ INPUT SELECT buttons**

To monitor one of the following four input signals, depress the INPUT B selector on the front panel and press the appropriate button.

**RGB:** To monitor the R/G/B signals connected to the R/R-Y, G/Y/TEST and B/B-Y connectors

**COMPONENT:** To monitor the component (R-Y, Y and B-Y) signals connected to the R/R-Y, G/Y/TEST and B/B-Y connectors

**TEST:** To monitor the composite video signals connected to the G/Y/TEST connector

**B:** To monitor the composite video signals connected to the VIDEO B INPUT connector

**Quick reference for input selection**

| Input signal<br>Operation | Encoded video | | | Component | RGB |
|---|---|---|---|---|---|
| | **VIDEO A** | **VIDEO B** | **TEST** | | |
| INPUT selectors (front panel) | A | B | B | B | B |
| INPUT SELECT buttons (right drawer) | | B | TEST | COMPONENT | RGB |
| INPUT connectors | VIDEO A | VIDEO B | G/Y/TEST | R/R-Y,<br>G/Y/TEST,<br>B/B-Y | R/R-Y,<br>G/Y/TEST,<br>B/B-Y |

**❾ COLOR STANDARD buttons**

Select the color standard of the input picture.

For displaying the picture of each color standard, the appropriate decoder board (optional) should be installed. See page 1-2.

**SECAM:** For SECAM standard

**PAL:** For PAL or PAL-M standard

**NTSC:** For NTSC standard

**Note**

If the decoder board for the selected color system is not installed:

- The picture does not appear on the screen when the FILTER switch ⓫ is set to ON.
- The picture is displayed in monochrome mode when the FILTER switch is set to OFF.

**❿ PRESET controls**

Adjust the preset levels.

**CONTRAST:** Preset the picture contrast level.

**BRIGHTNESS:** Preset the picture brightness level.

**CHROMA:** Preset the color saturation level.

**PHASE:** Preset the subcarrier phase.

**⓫ FILTER switch**

This switch functions only when the MODE selector on the front panel is set to MONO.

Normally set to ON to activate the comb or trap filter. Set to OFF to deactivate the filter for a wider frequency range.

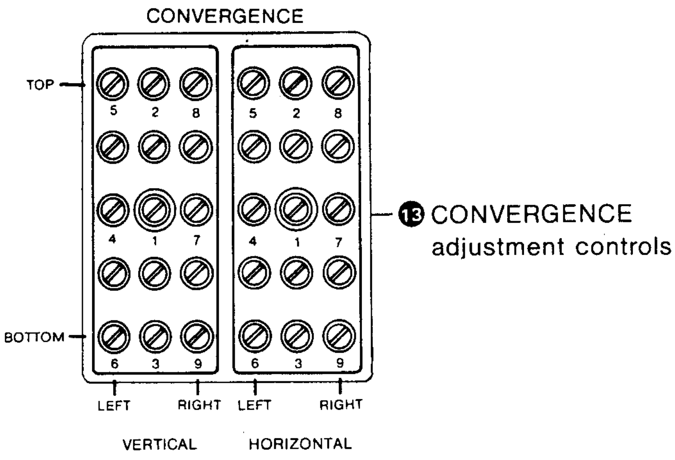
- When the MODE selector is set to AUTO, the filter is always activated for color signals regardless of this switch setting.

**⓬ SPLIT SCREEN switch**

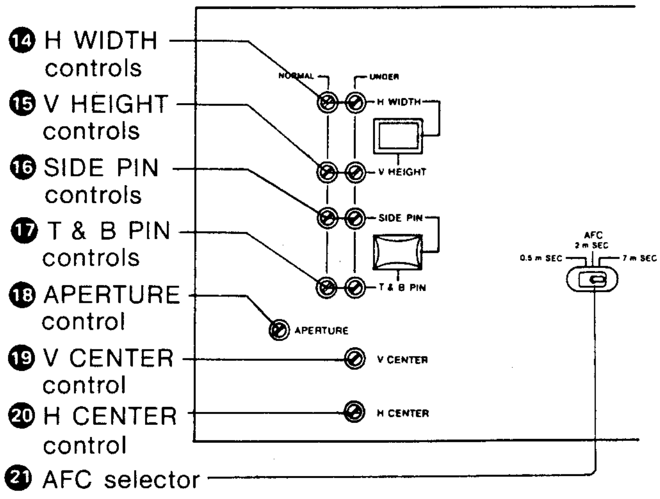
Normally set to OFF. When this switch is set to ON, the lower half of the picture is displayed in monochrome mode.

## Inside the left drawer

**DB board** (Convergence adjustment section)


CONVERGENCE
TOP
BOTTOM
5 2 8
4 1 7
6 3 9
5 2 8
4 1 7
6 3 9
LEFT
RIGHT
LEFT
RIGHT
VERTICAL
HORIZONTAL
⑬ CONVERGENCE adjustment controls

**DA board** (H.V. oscillator section)


⑭ H WIDTH controls
⑮ V HEIGHT controls
⑯ SIDE PIN controls
⑰ T & B PIN controls
⑱ APERTURE control
⑲ V CENTER control
⑳ H CENTER control
㉑ AFC selector
NORMAL
UNDER
H WIDTH
V HEIGHT
SIDE PIN
T & B PIN
APERTURE
V CENTER
H CENTER
AFC
2 m SEC
0.5 m SEC
7 m SEC

### ⑬ CONVERGENCE adjustment controls

Used to adjust the convergence of the picture. The VERTICAL controls adjust the convergence vertically; the HORIZONTAL controls adjust it horizontally. 15 controls cover the entire screen so that each control adjusts the corresponding portion of the screen. Refer to "1-4. CONVERGENCE ADJUSTMENT" on page 1-14.

### ⑭ H WIDTH (horizontal width) controls

Adjust the width of the picture. Use the NORMAL control for the normal picture, and the UNDER control for the underscanned picture.

### ⑮ V HEIGHT (vertical height) controls

Adjust the height of the picture. Use the NORMAL control for the normal picture, and the UNDER control for the underscanned picture.

### ⑯ SIDE PIN (pincushion) controls

Correct the side pincushion distortion. Use the NORMAL control for the normal picture, and the UNDER control for the underscanned picture.

### ⑰ T & B PIN (top and bottom pincushion) distortion

Correct the top and bottom picushion distortion. Use the NORMAL control for the normal picture, and the UNDER control for the underscanned picture.

### ⑱ APERTURE control

Adjusts the frequency response when the APT switch on the front panel is depressed.

### ⑲ V CENTER (vertical centering) control

Adjusts the vertical position of the picture.

### ⑳ H CENTER (horizontal centering) control

Adjusts the horizontal position of the picture.

### ㉑ AFC (automatic frequency control) selector

Selects the AFC time constant.

**0.5 mSEC (fast):** This mode is fast enough to correct for VTR jitter. Set to this position to obtain a stable playback picture from a VTR.

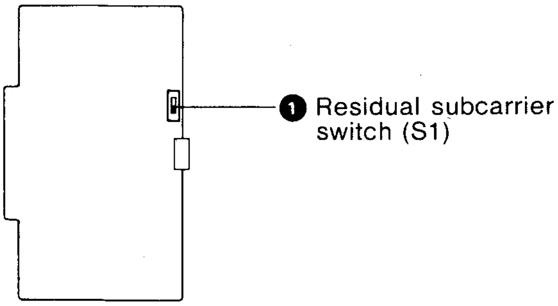
**2 mSEC (normal):** Normally set to this position.

**7 mSEC (slow):** This mode is slow enough to display the time base instability introduced by mechanical jitter, in the VTR playback signal.

## 1-3-4. Switches inside the Cabinet

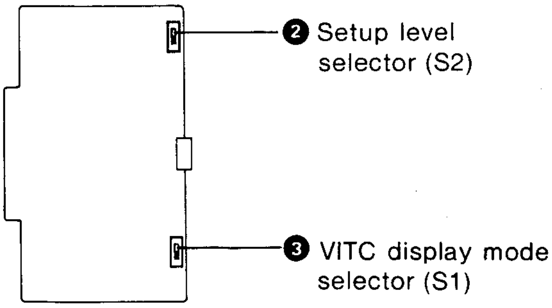
Remove the cabinet, referring to Section 2.

**BJ board**



**❶ Residual subcarrier switch (S1)**
This switch is factory-preset to the lower position (OFF).
Normally there will be no residual subcarrier in input video signals. However, if a residual subcarrier is present, this may affect the display.
Set this switch to the upper position (ON) to check if a residual subcarrier is present. If it is present in the incoming signal, color shift appears in the picture.

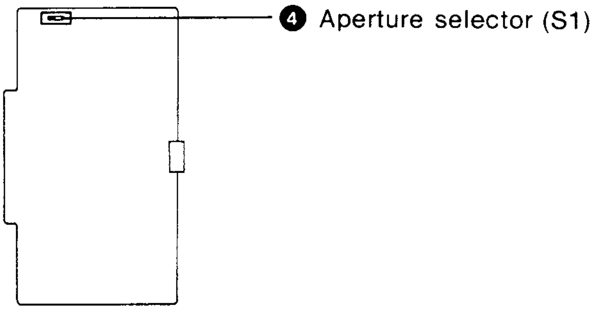
**BH board**


❷ Setup level selector (S2)
❸ VITC display mode selector (S1)

**❷ Setup level selector (S2)**
Select the setup level.
**0 IRE:** Setup level is 0%.
**AUTO:** Factory-preset position. Setup level is 0% when the field frequency of the input signal is 50 Hz, and 7.5% when the field frequency is 60 Hz.
**7.5 IRE:** Setup level is 7.5%.
The setup level can be adjusted with the controls on the BH board: 0% level with the RV1 control, and 7.5% level with the RV2 control in the range from −2.5% through +12.5%.

**❸ VITC display mode selector (S1)**
Used to invert the character and background colors.
**Upper position:** Factory-preset position. The VITC is displayed in white characters with black background.
**Lower position:** The VITC is displayed in black characters with white background.
For details, refer to the operation and maintenance manual of the BKM-1460 VITC adaptor.

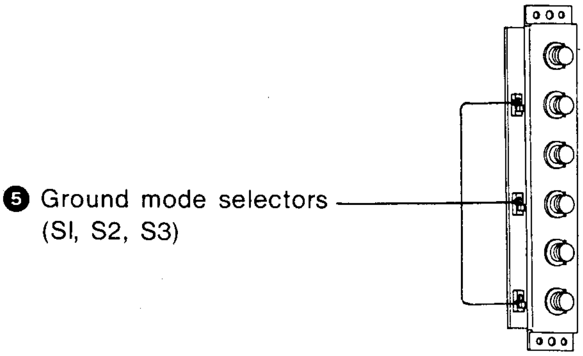
**BG board**



**❹ Aperture selector (S1)**
Selects the boost frequency, 4.5 MHz or 6.5 MHz, for aperture correction. This selector is factory-preset to 4.5 MHz.

**QA and QB boards**

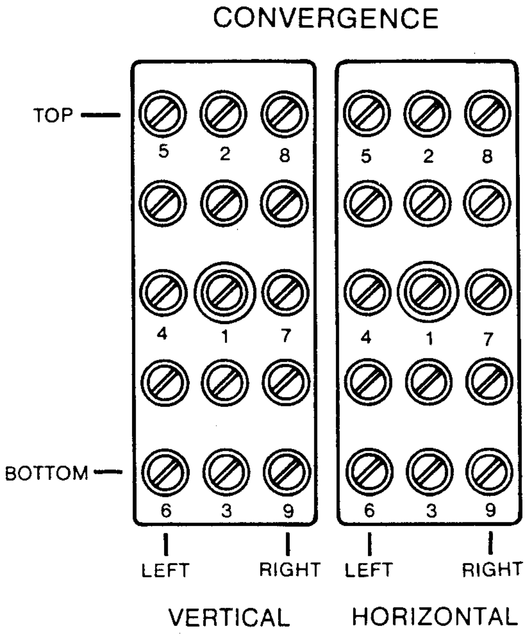
The QA and QB boards are located behind the INPUT connector panels.
Remove the INPUT connector panels, referring to Section 2.



**❺ Ground mode selectors (S1, S2, S3)**
Three selectors are provided for each VIDEO A, VIDEO B and EXT SYNC connectors (QA board), or for each R/R-Y, G/Y/TEST and B/B-Y connectors (QB board).
**S (non-floating):** Factory-preset position. Normally keep the selectors at this position.
**F (floating):** When there is hum in the input signal, set to this position. Common mode noises will be rejected.

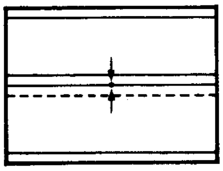
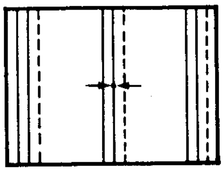
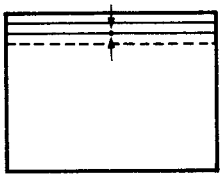
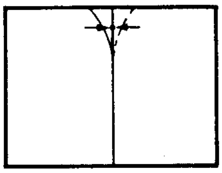
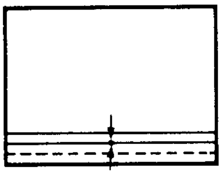
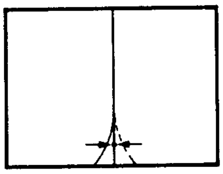
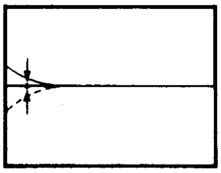
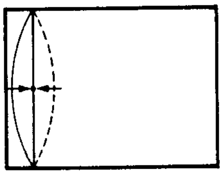
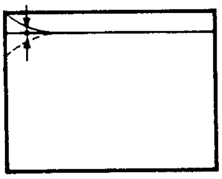
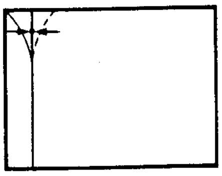
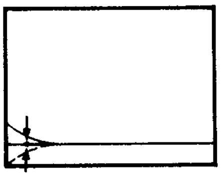
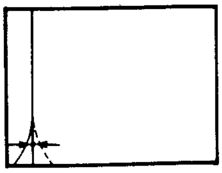
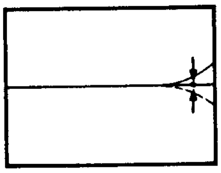
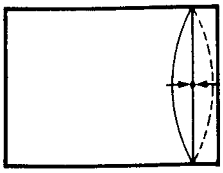
# 1-4. CONVERGENCE ADJUSTMENT

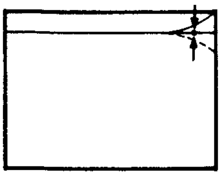
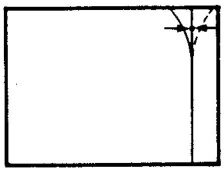
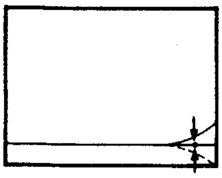
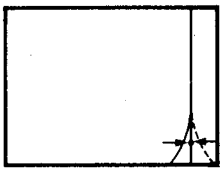
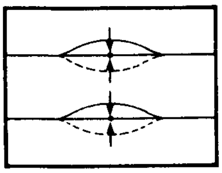
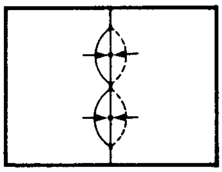
Use the CONVERGENCE controls inside the left drawer.


CONVERGENCE
TOP
BOTTOM
5 2 8
4 1 7
6 3 9
5 2 8
4 1 7
6 3 9
LEFT
RIGHT
LEFT
RIGHT
VERTICAL
HORIZONTAL

- Numbers 1 to 9 in the illustration above refer to the sequence of operations.
- The HORIZONTAL controls adjust the convergence horizontally, and the VERTICAL controls adjust the convergence vertically.
- When adjusting the convergence, observe the portion of the screen indicated by the ↕ or →·← mark in the illustrations. The red and blue beams move symmetrically to the green beam.

Adjust the convergence of corresponding portion of the screen as follows:

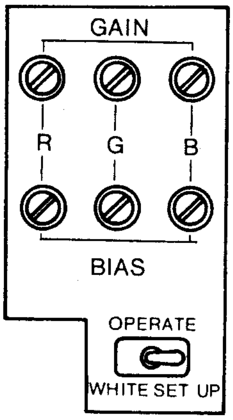
| | VERTICAL | HORIZONTAL |
|---|---|---|
| 1 At center |  |  |
| 2 At center top |  |  |
| 3 At center bottom |  |  |
| 4 At left·center |  |  |
| 5 At top left |  |  |
| 6 At bottom left |  |  |
| 7 At right center |  |  |

| VERTICAL | HORIZONTAL |
|---|---|
| 8 At top right | |
|  |  |
| 9 At bottom right | |
|  |  |
| 10 Adjust the convergence between the center and top and between the center and bottom on the screen as required. | |
|  |  |

## 1-5. WHITE BALANCE ADJUSTMENT

Use the WHITE/OPERATE/SET UP selector and GAIN/BIAS ADJUST controls inside the right drawer. During adjustment, turn the red, green and blue beams on and off with the SCREEN switches on the front panel, as required.

GAIN/BIAS ADJUST



1. Display a test signal on the screen.
2. Set the WHITE/OPERATE/SET UP selector to SET UP.
3. Adjust the white balance at the lowlight with the BIAS controls.
4. Set the WHITE/OPERATE/SET UP selector to WHITE.
5. Adjust the white balance at the highlight with the GAIN controls.
6. After adjustment, set the WHITE/OPERATE/SET UP selector to OPERATE.

**Note**

For white balance adjustment using a color analyzer or equivalent, see Section 2.

# 1-6. SPECIFICATIONS

| | |
|---|---|
| System | **BVM-1410P**<br>625 lines per picture, 50 fields per second interlaced, PAL<br>**BVM-1410PM**<br>525 lines per picture, 60 fields per second interlaced, PAL-M |
| CRT | Super Fine Pitch Trinitron 0.25 mm aperture grille, 90-degree deflection, ϕ36 mm in-line gun<br>Effective picture size: 200.3 × 267.2 mm (h/w) (8 × 10⅝ inches)<br>330.8 mm (13 inch) picture measured diagonally |

**Input**

| | |
|---|---|
| Connectors | BNC type (12) |
| Video | VIDEO A/B, TEST, R/G/B<br>0.7 Vp-p, non-composite or 1 Vp-p, composite, video signal ±6 dB positive, high impedance, with loop-through output<br>Y/R-Y/B-Y<br>Y: Composite, 1.0 Vp-p ±6 dB, high impedance, loop-through<br>R-Y/B-Y: 0.7 Vp-p±6 dB, high impedance, loop-through |
| Sync | EXT SYNC<br>1 - 8 Vp-p negative, high impedance, with loop-through output |
| Return loss | More than 46 dB (7 MHz with 75-ohm termination) |
| Hum rejection | Reduced by more than 50 dB<br>Maximum hum: Less than 4 Vrms, where hum is applied to the monitor in floating ground mode |

**Output**

| | |
|---|---|
| Connectors | VECTOR OUT: BNC type (2)<br>DECODER OUT: BNC type (3)<br>REMOTE: 10-pin connector (1) |

* The input level of a component signal conforms to the EBU "N-10" standard. (BVM-1410P only)

**Video signal**

| | |
|---|---|
| Luminance channel (RGB and composite signals) | |
| Differential gain | Within 2% for a luminance from 0 to 40 fL |
| Differential phase | Within 2° for a luminance from 0 to 40 fL |
| Frequency response | Monochrome mode: 100 Hz to 8 MHz ±1 dB (aperture correction at 0)<br>Color mode: Trap filter removes frequency in 4.43 MHz region (BVM-1410P) or 3.58 MHz region (BVM-1410PM). |
| Chrominance channel | |
| Demodulation axis | R−Y, B−Y |
| Bandpass | 1.3 MHz equiband |
| Subcarrier regeneration | ±1 (standard input signal) |
| Phase control range | More than ±15 (standard input signal) |
| Chroma gain control range | More than ±6 dB |
| Chrominance/luminance | |
| Time error | Less than 30 nsec |
| Gain error | Less than 5% |
| Aperture correction | Adjustable continuously up to 6 dB boost at 4.5 MHz or 6.5 MHz (selectable) |
| DC restoration (RGB and composite signals) | Back porch type<br>Back porch level: Within 1% of peak luminance, 10% to 90% APL (average picture level) |

**Synchronization**

| | |
|---|---|
| AFC time constant | 0.5 msec: FAST<br>2 msec: NORMAL<br>7 msec: SLOW |
| Line pull range/line hold range | More than ±500 Hz at 0.5 msec time constant |
| Vertical blanking time | Normal: Within 1 msec.<br>Underscan: Within 0.8 msec. |
| Horizontal retrace time | Within 10 μsec. |

**Picture performance**

| | |
|---|---|
| Normal scan | 5% overscan of CRT effective screen area (adjustable range more than ±15%) |
| Underscan | 3% underscan of CRT effective screen area (adjustable range more than ±15%) |

| | |
|---|---|
| Linearity | Within a central area bounded by a circle whose diameter equals the picture height, within 0.5% of the picture height, out of area 1% |
| Color temperature | D6500, adjustable to other color temperatures |

Nominal chromaticity coordinates

EBU standard phosphor

| | x | y |
|---|---|---|
| Red | 0.64 | 0.33 |
| Green | 0.29 | 0.60 |
| Blue | 0.15 | 0.06 |

Error: Less than ±0.005

| | |
|---|---|
| Convergence error | Central area: Less than 0.3 mm<br>Periphery: Less than 0.6 mm |
| Calibrated constant | 40 fL at peak white of standard 1 Vp-p signal |
| Raster size stability | Less than 1% picture height, 0% to 100% APL at 40 fL peak luminance |
| Scan delay | Horizontal: Approx. 1/4 line<br>Vertical: Approx. 1/2 field |
| Resolution | More than 700 TV lines (center, at 40 fL luminance) |

**Environment**

| | |
|---|---|
| Operating temperature | 0 to 40°C (32 to 104°F) |
| Optimum temperature range | 20 to 30°C (68 to 86°F) |
| Humidity | 0 to 90% |
| Altitude | Approx. 3,050 m (10,000 feet) |

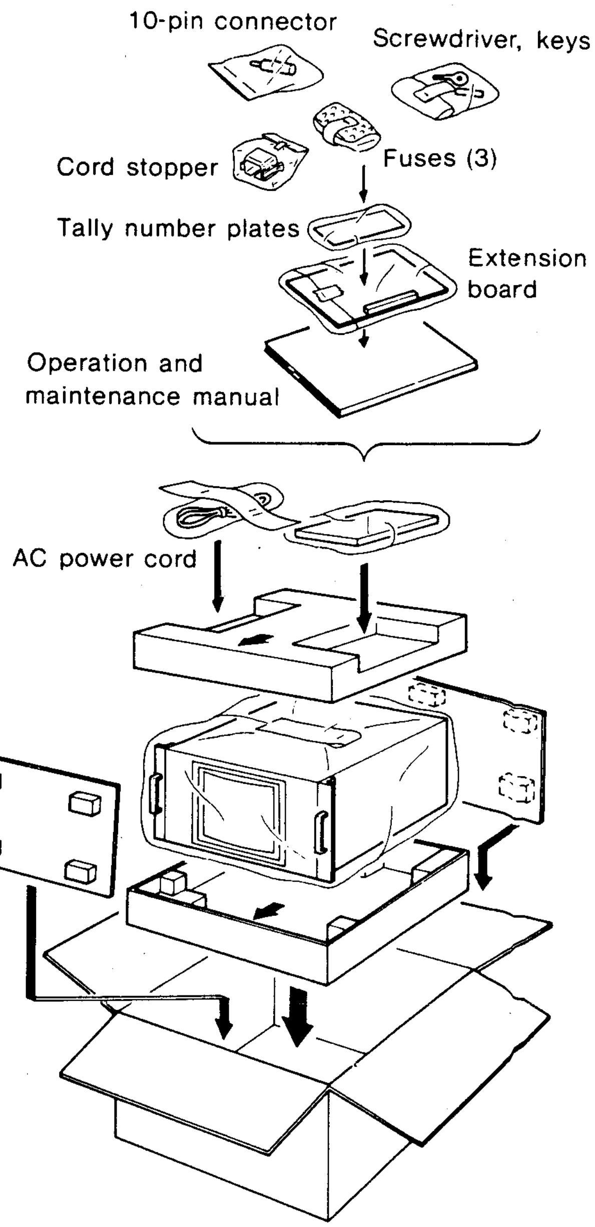
**General**

| | |
|---|---|
| Picture tube protection | EHT (Extremely High Tension) is shut off in the event of scan failure. |
| Warm up | 30 minutes to meet specifications |
| Anode voltage | Properly adjusted HV 25 kV at zero beam current |
| Power consumption | Typical: 142W<br>Maximum: 160W<br>100 - 120V AC 2.7A<br>220 - 240V AC 1.4A |
| Power requirements | 220 - 240 or 100 - 120V AC ±10%, adjustable, 50/60 Hz |
| Dimensions | 426 × 281.5 × 489 mm (w/h/d)<br>(16 7/8 × 11 1/8 × 19 3/8 inches) incl. projecting parts and controls |
| Weight | 32 kg (70 lb 9 oz) |

| | |
|---|---|
| Supplied accessories | AC power cord (1)<br>Cord stopper (1)<br>Screwdriver (1)<br>Drawer keys (2)<br>Extension board (1)<br>10-pin connector (1)<br>Fuses (3)<br>Tally number plates (1 set)<br>Operation and maintenance manual (1) |

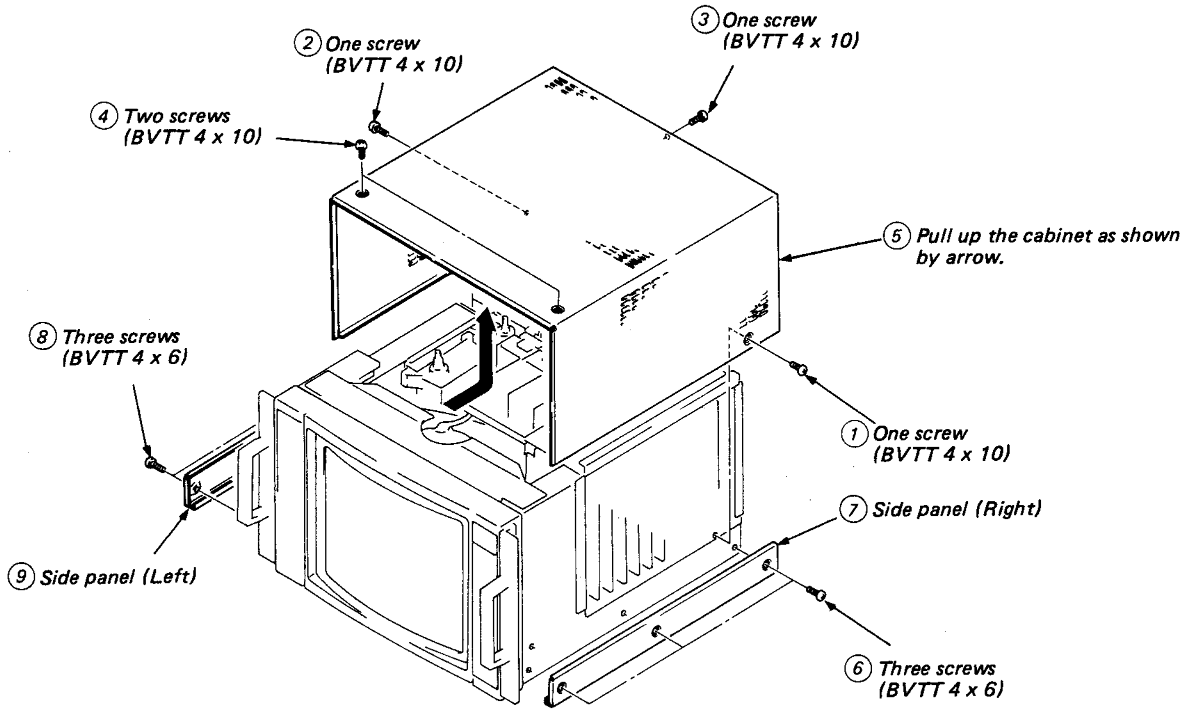
Design and specifications subject to change without notice.

## 1-7. PACKING



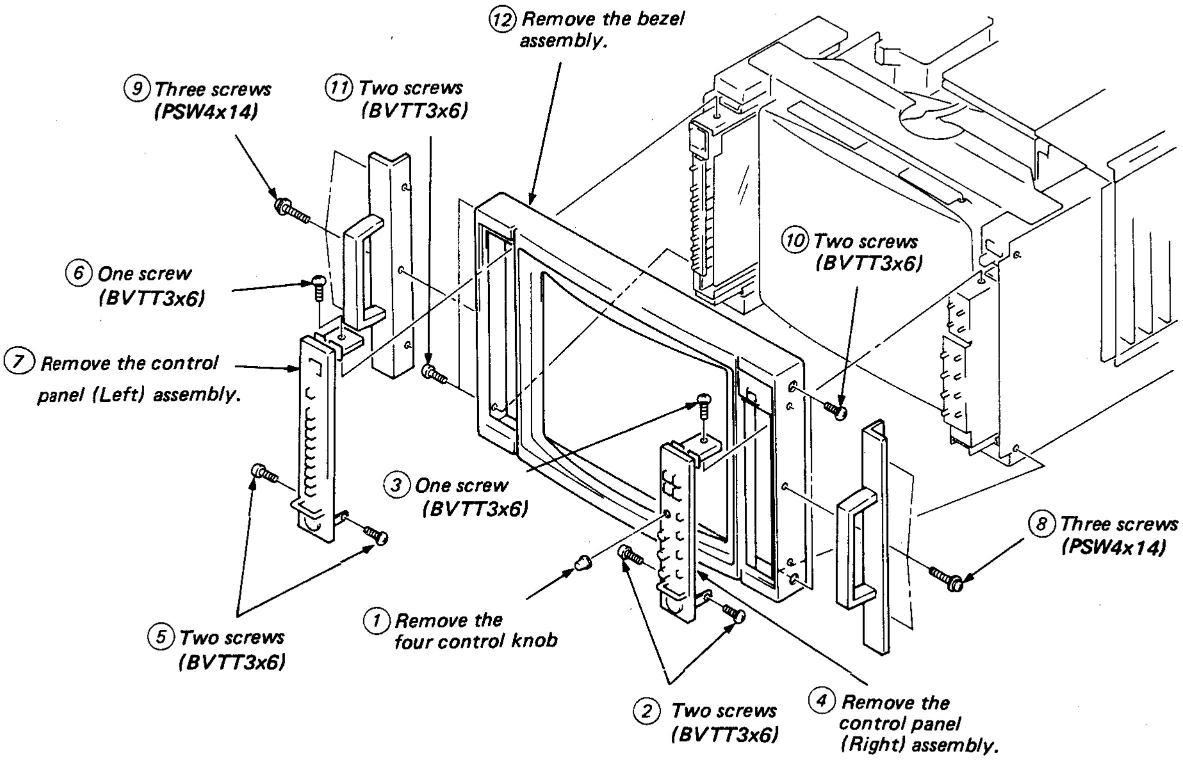
# SECTION 2
# DISASSEMBLY

## 2-1. CABINET REMOVAL AND THE SIDE PANELS



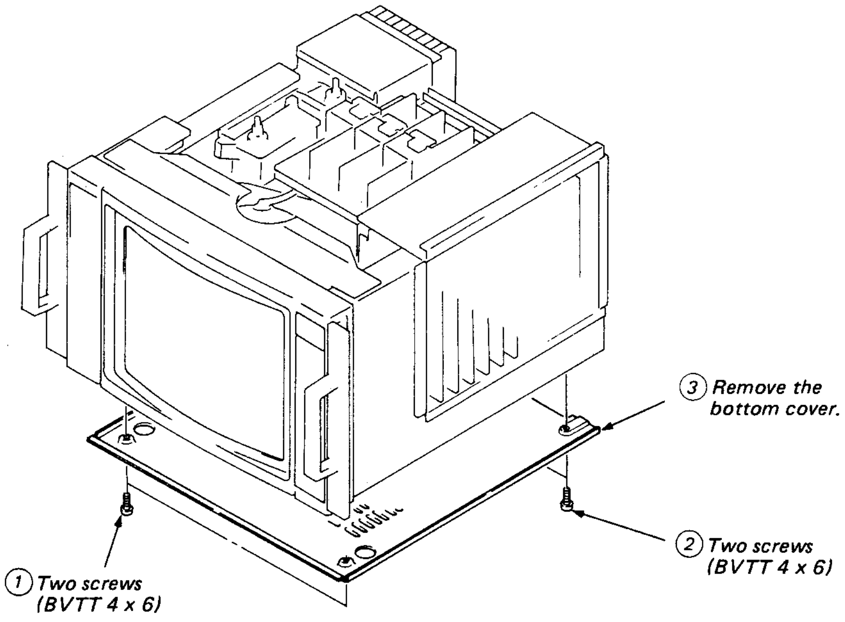
② One screw (BVTT 4 x 10)
③ One screw (BVTT 4 x 10)
④ Two screws (BVTT 4 x 10)
⑤ Pull up the cabinet as shown by arrow.
⑧ Three screws (BVTT 4 x 6)
① One screw (BVTT 4 x 10)
⑦ Side panel (Right)
⑨ Side panel (Left)
⑥ Three screws (BVTT 4 x 6)

## 2-2. BEZEL ASSEMBLY REMOVAL

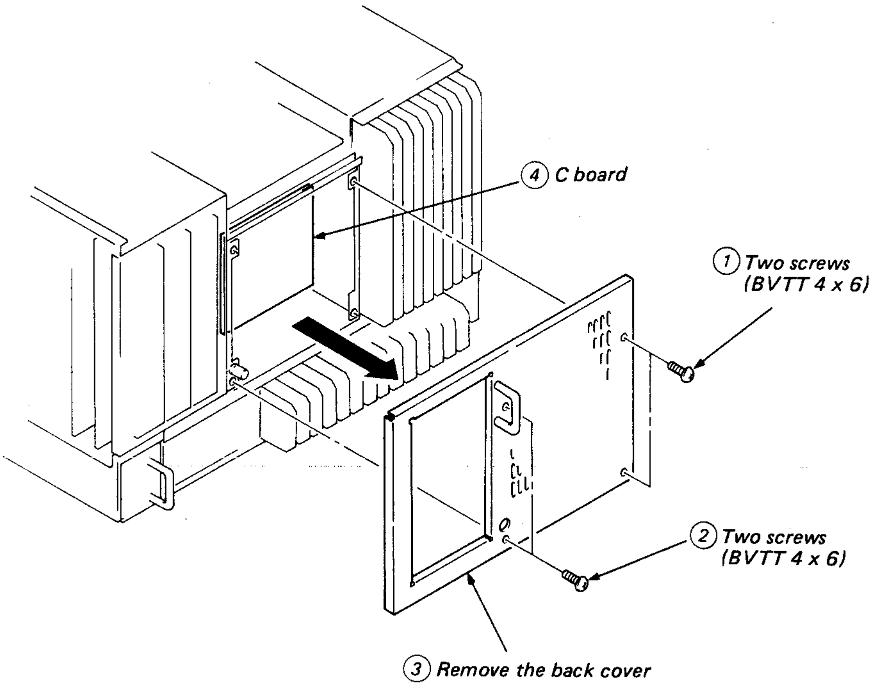


⑫ Remove the bezel assembly.
⑨ Three screws (PSW4x14)
⑪ Two screws (BVTT3x6)
⑩ Two screws (BVTT3x6)
⑥ One screw (BVTT3x6)
⑦ Remove the control panel (Left) assembly.
③ One screw (BVTT3x6)
⑧ Three screws (PSW4x14)
⑤ Two screws (BVTT3x6)
① Remove the four control knob
② Two screws (BVTT3x6)
④ Remove the control panel (Right) assembly.

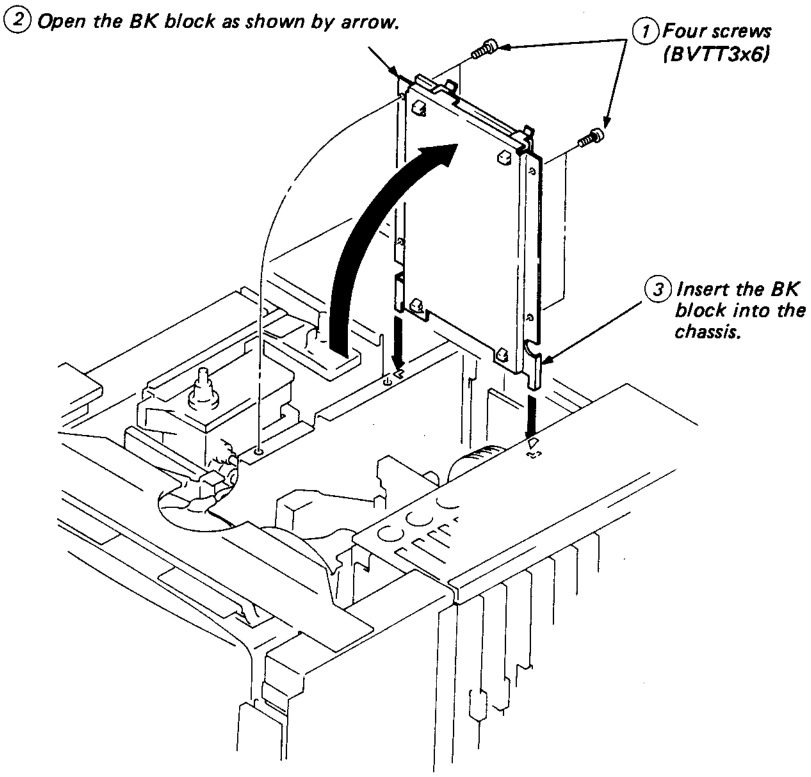
## 2-3. BOTTOM COVER REMOVAL


③ Remove the bottom cover.
② Two screws (BVTT 4 x 6)
① Two screws (BVTT 4 x 6)

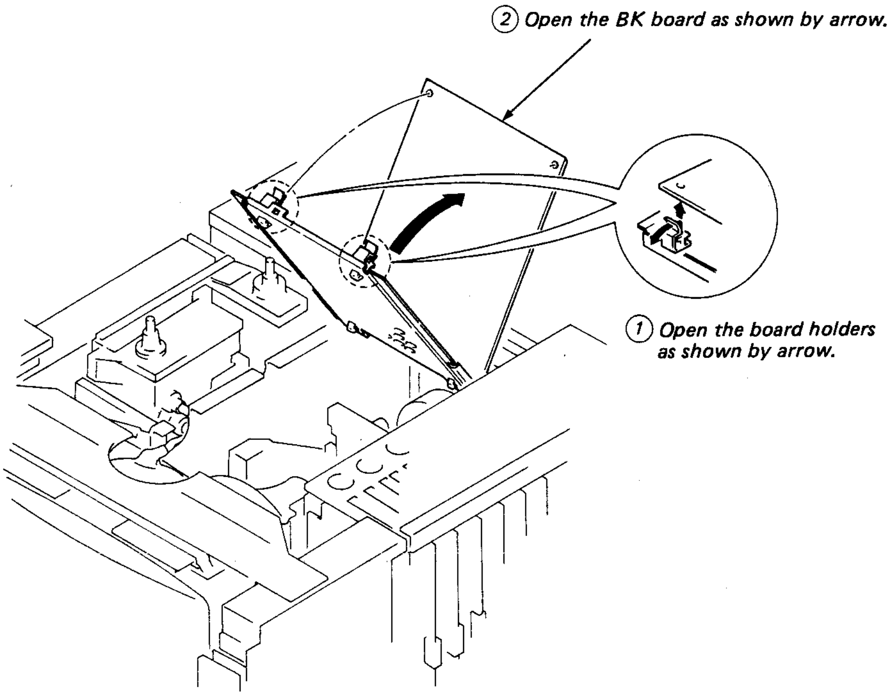
## 2-4. CHECK OF C BOARD


④ C board
① Two screws (BVTT 4 x 6)
② Two screws (BVTT 4 x 6)
③ Remove the back cover

## 2-5. BK BLOCK REMOVAL

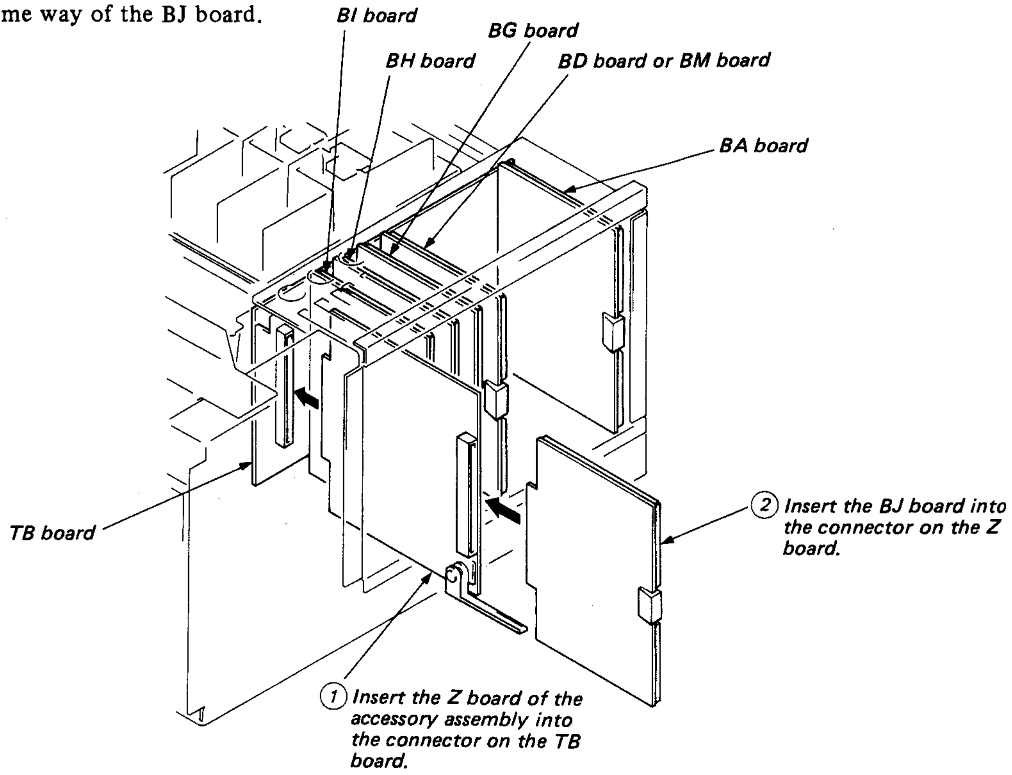

② Open the BK block as shown by arrow.
① Four screws (BVTT3x6)
③ Insert the BK block into the chassis.

## 2-6. CHECK OF BK BOARD


② Open the BK board as shown by arrow.
① Open the board holders as shown by arrow.

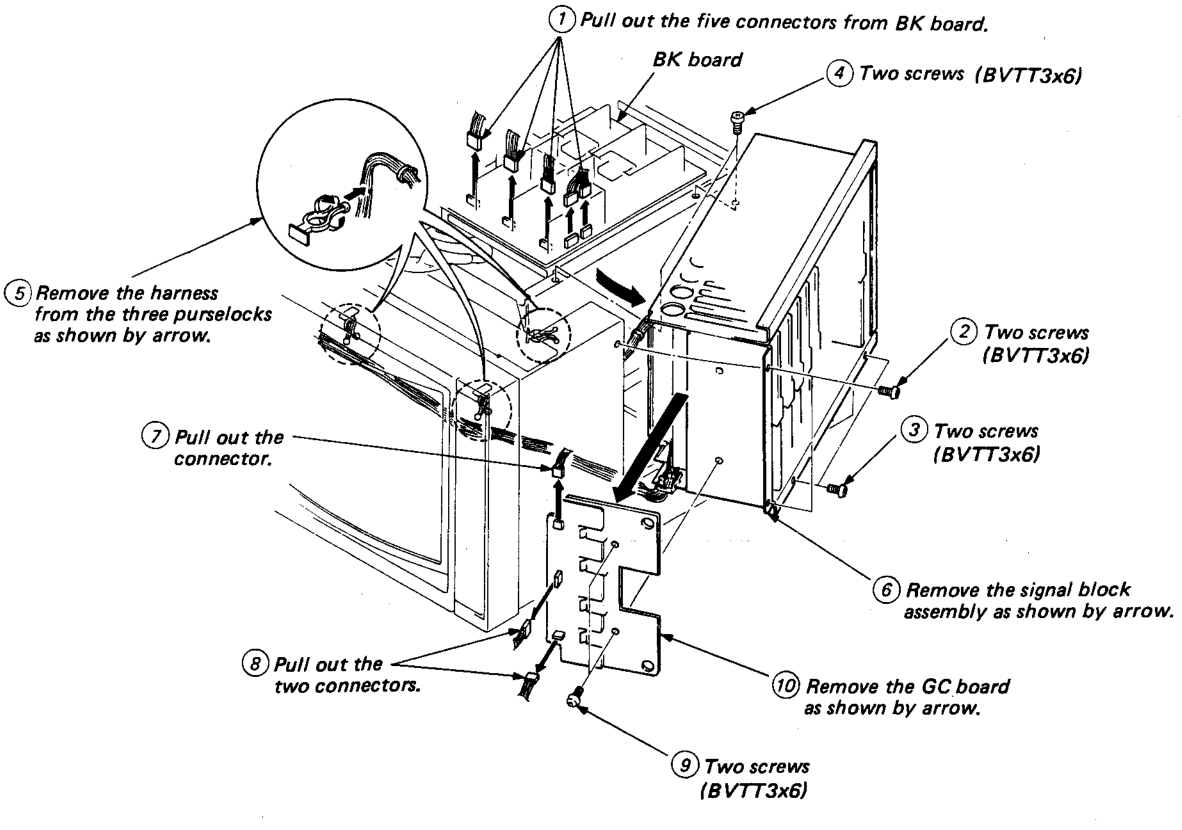
## 2-7. CHECK OF BJ BOARD

**Note:** The BA, BD or BM, BG, BH and BI boards can be checked in the same way of the BJ board.



BI board
BG board
BH board
BD board or BM board
BA board
TB board
② Insert the BJ board into the connector on the Z board.
① Insert the Z board of the accessory assembly into the connector on the TB board.

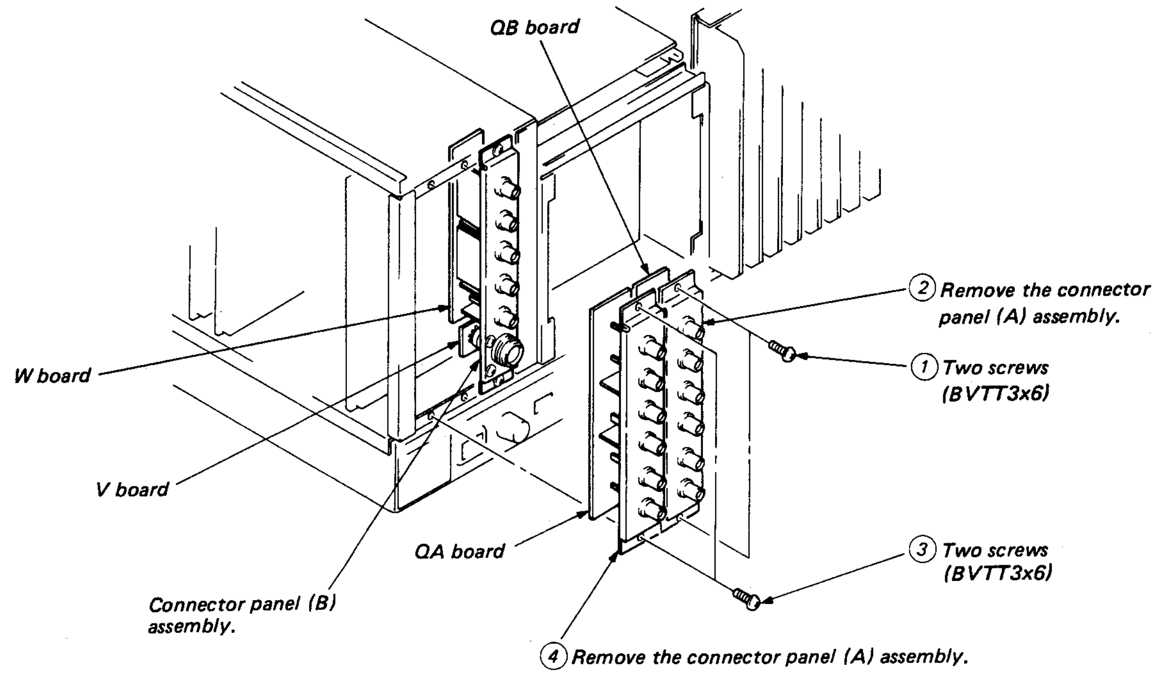
## 2-8. GC BOARD REMOVAL



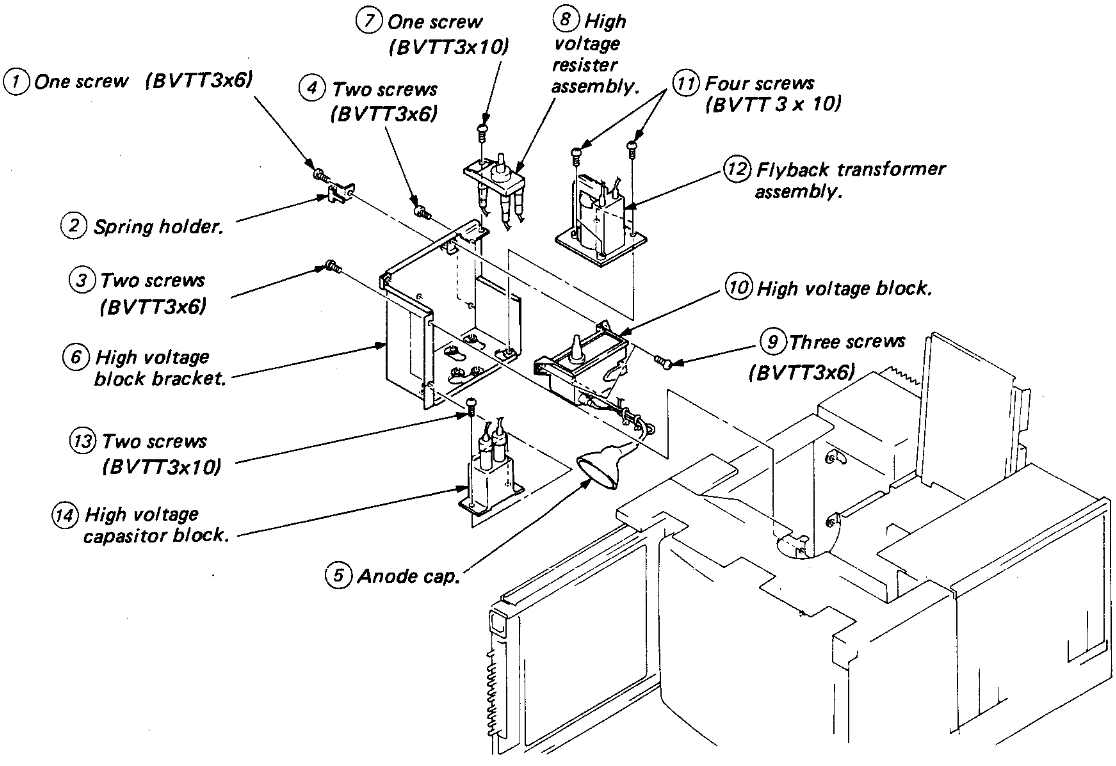
① Pull out the five connectors from BK board.
BK board
④ Two screws (BVTT3x6)
⑤ Remove the harness from the three purselocks as shown by arrow.
② Two screws (BVTT3x6)
③ Two screws (BVTT3x6)
⑦ Pull out the connector.
⑥ Remove the signal block assembly as shown by arrow.
⑧ Pull out the two connectors.
⑩ Remove the GC board as shown by arrow.
⑨ Two screws (BVTT3x6)

## 2-9. QA, W AND V BOARDS REMOVAL

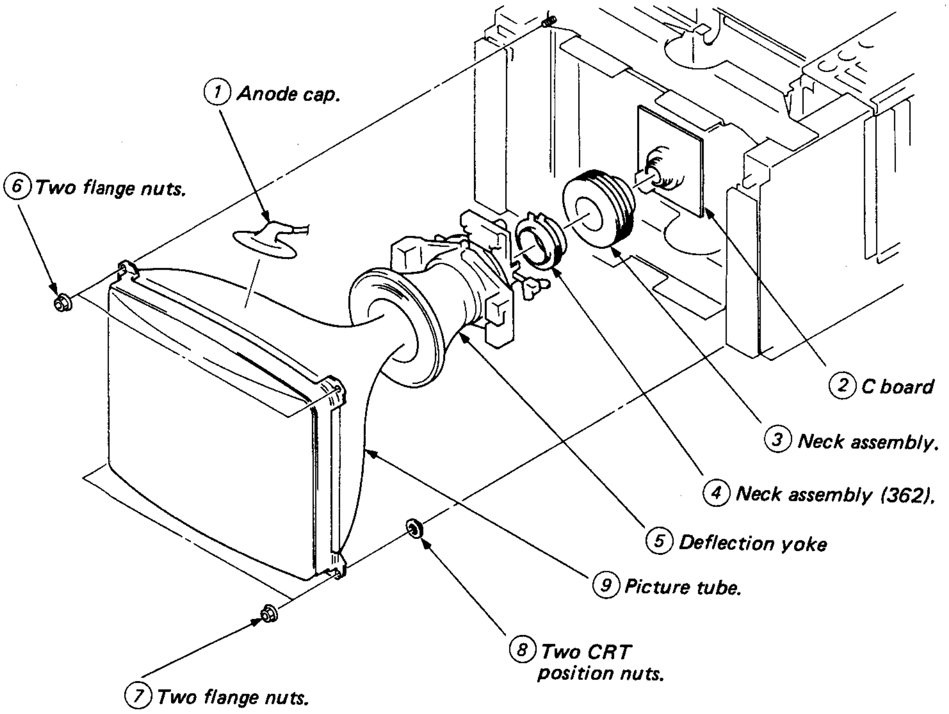
**Note:** Connector panel (B) assembly can be removed in the same way.

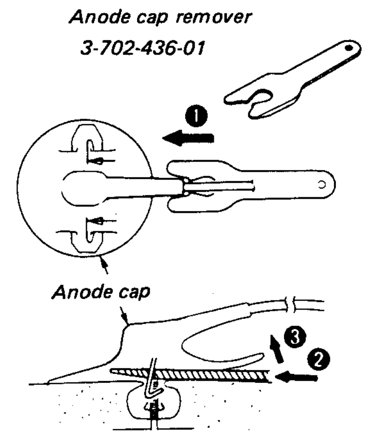

QB board
② Remove the connector panel (A) assembly.
① Two screws (BVTT3x6)
W board
V board
QA board
③ Two screws (BVTT3x6)
Connector panel (B) assembly.
④ Remove the connector panel (A) assembly.

## 2-10. FLYBACK TRANSFORMER AND HIGH VOLTAGE BLOCK REMOVAL


⑦ One screw (BVTT3x10)
⑧ High voltage resister assembly.
① One screw (BVTT3x6)
④ Two screws (BVTT3x6)
⑪ Four screws (BVTT 3 x 10)
⑫ Flyback transformer assembly.
② Spring holder.
③ Two screws (BVTT3x6)
⑩ High voltage block.
⑥ High voltage block bracket.
⑨ Three screws (BVTT3x6)
⑬ Two screws (BVTT3x10)
⑭ High voltage capasitor block.
⑤ Anode cap.

## 2-11. PICTURE TUBE REMOVAL

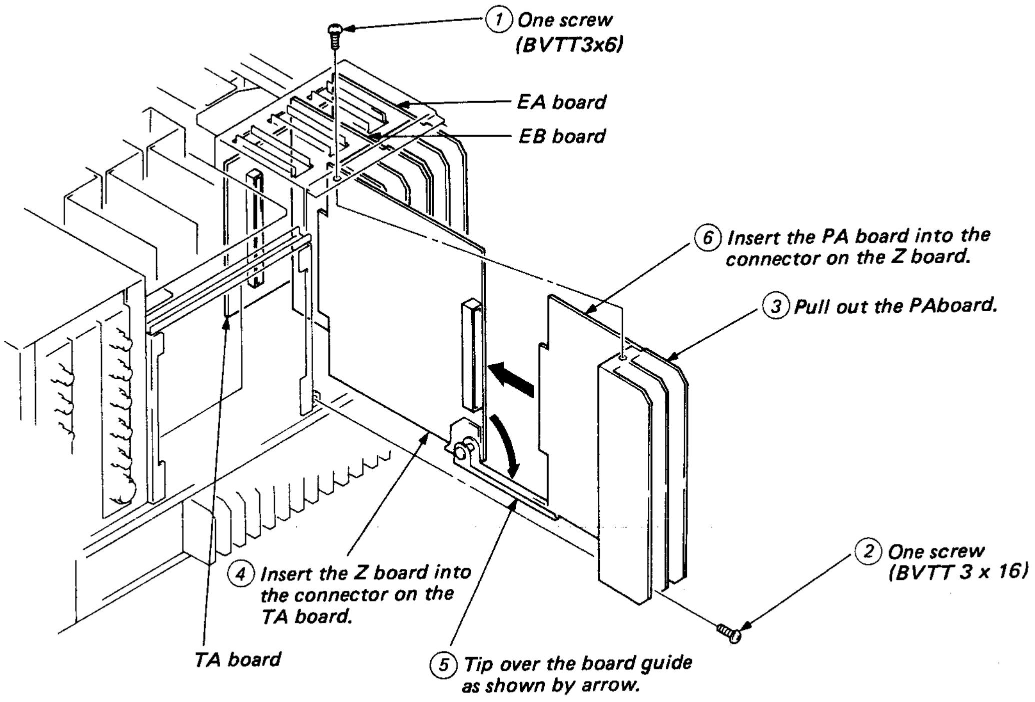

① Anode cap.
⑥ Two flange nuts.
② C board
③ Neck assembly.
④ Neck assembly (362).
⑤ Deflection yoke
⑨ Picture tube.
⑧ Two CRT position nuts.
⑦ Two flange nuts.


Anode cap remover
3-702-436-01
❶
Anode cap
❸
❷

**Note:** Be sure to have the cap discharged before working.

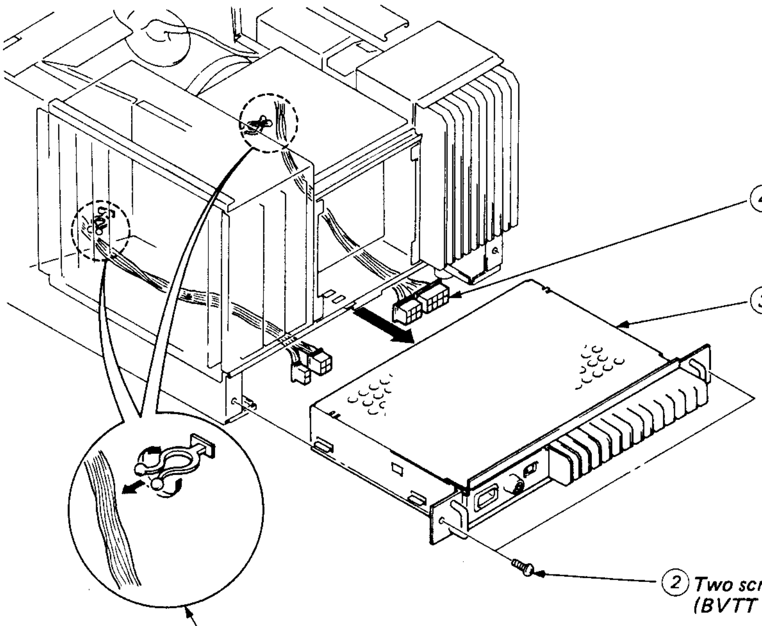
## 2-12. CHECKING OF PA BOARD

**Note:** The EA, EB boards can be checked in the same way.


① One screw (BVTT3x6)
EA board
EB board
⑥ Insert the PA board into the connector on the Z board.
③ Pull out the PAboard.
② One screw (BVTT 3 x 16)
④ Insert the Z board into the connector on the TA board.
TA board
⑤ Tip over the board guide as shown by arrow.

## 2-13. POWER BLOCK ASSEMBLY REMOVAL

**Note:** Remove the bottom cover before the follow operations.



*④ Pull out the four connectors (2P, 4P, 6P, 8P)*

*③ Pull out the power block.*

*② Two screws (BVTT 4 x 6)*

*① Remove the harness from the purse lock as shown by arrow.*

# SECTION 3
# CIRCUIT DESCRIPTIONS

## 3-1. QA, QB, BA BOARDS

### 3-1-1. Input Circuit

**Cable Compensation (QA, QB)**

CABLE COMPENSATION is composed of inductance L and capacitor C1 (Figure 1) in QA board and performs return loss compensation.

Grounding or floating in input terminal can be selected by switch S1.

On floating mode, common mode rejection can be performed.

QB board also has same function.

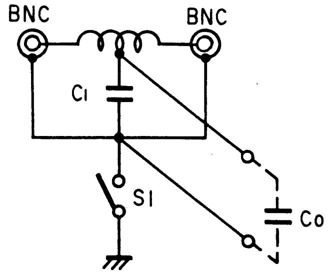

BNC
BNC
CI
SI
Co

*Figure 1*

**Hook Up Circuit (BA)**

This circuit is composed of transistors Q101-105 and performs common mode rejection when SW S1 is selected to the floating mode.

In Figure 2, Gains of amplifier for input A and B are derived as follows.

$A = \frac{Rc}{Ri}$ : Gain of amplifier for input A

$B = -\frac{Rc}{Ri}$ : Gain of amplifier for input B

When input (ec + ei) is applied to input A and input (ec – ei) to input B, then output eo is

$$eo = \frac{Rc}{Ri}(ec + ei) + (-\frac{Rc}{Ri})(ec - ei) = 2\frac{Rc}{Ri}ei$$

This equation indicates that ec is eliminated and there is no common mode signal in output signal.

On hook up circuit, NF Amplifier (Negative Feedback) is used to get frequency response flat.

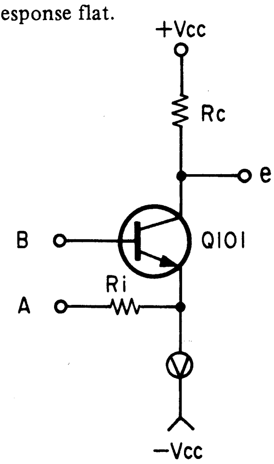

+Vcc
Rc
eo
B
Q101
Ri
A
–Vcc

*Figure 2*

**Input Select Sw, Sync Select SW (BA)**

For composite video signal, VIDEO A/B/TEST mode is selected by INPUT SELECT SW (IC1). For sync signal, INT SYNC/EXT SYNC is selected by SYNC SELECT SW IC2.

### 3-1-2. Sync AGC Circuit

This circuit is composed of following components; LPF (Low Pass Filter) (Q701), variable gain amplifier (Q702-Q705), bias control circuit (Q708-Q710), gain control circuit (Q711, 712) and amplifier (Q706, 707), Figure 3 shows block diagram of this circuit.

An inverted composite video signal or composite sync signal (eo) is derived at the collector of transistor Q707.

The bias control circuit compares maximum value of eo with base voltage of Q708 (E1) and controls bias of amplifier so that they match.

Also the gain control circuit compares pedestal level of eo with base voltage of Q711 (E2), and controls variable gain amplifier so that they match.

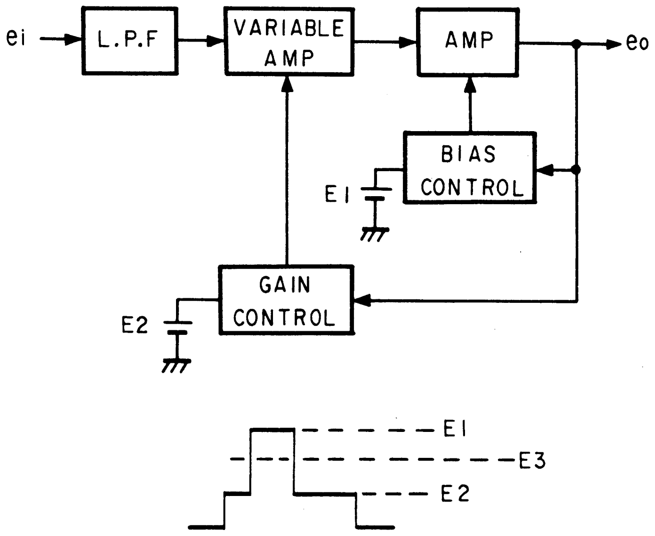

ei
L.P.F
VARIABLE AMP
AMP
eo
BIAS CONTROL
E1
GAIN CONTROL
E2
E1
E3
E2

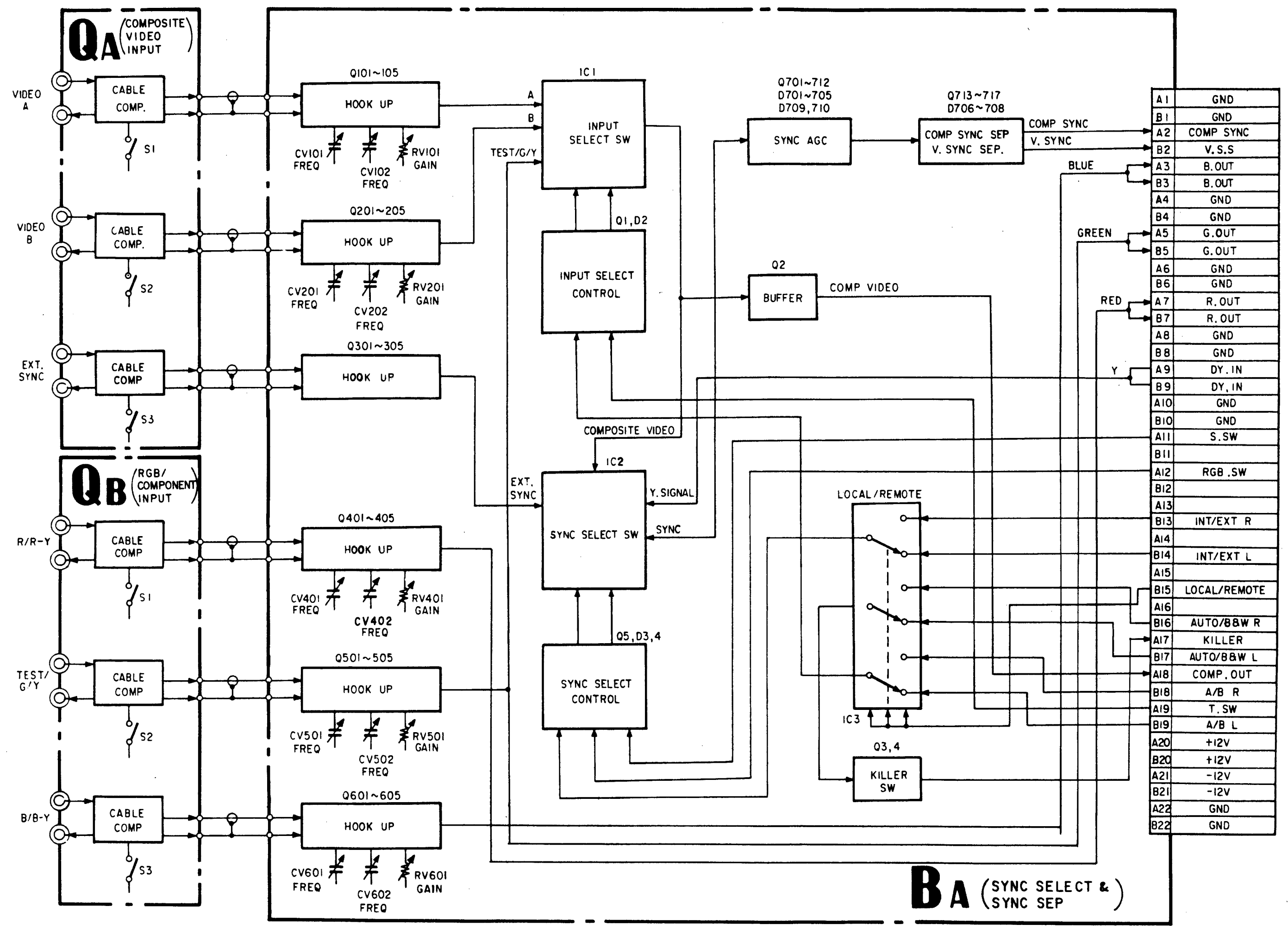
*Figure 3*

**Composite Sync Separation, Vertical Sync Separation**

Composite sync is separated from composite video signal or composite sync by comparing voltage eo with the base voltage of transistor Q713 (E3).

Horizontal component in composite video signal or composite sync signal is removed by LPF (Low Pass Filter, Q716) and Vertical sync is separated by transistor Q717.

## BLOCK DIAGRAM OF QA, QB, BA BOARDS


QA (COMPOSITE VIDEO INPUT)
VIDEO A
VIDEO B
EXT. SYNC
CABLE COMP.
S1
S2
S3
QB (RGB/ COMPONENT INPUT)
R/R-Y
TEST/ G/Y
B/B-Y
Q101~105
Q201~205
Q301~305
Q401~405
Q501~505
Q601~605
HOOK UP
CV101 FREQ
CV102 FREQ
RV101 GAIN
CV201 FREQ
CV202 FREQ
RV201 GAIN
CV401 FREQ
CV402 FREQ
RV401 GAIN
CV501 FREQ
CV502 FREQ
RV501 GAIN
CV601 FREQ
CV602 FREQ
RV601 GAIN
IC1
A
B
TEST/G/Y
INPUT SELECT SW
Q1, D2
INPUT SELECT CONTROL
COMPOSITE VIDEO
IC2
EXT. SYNC
Y. SIGNAL
SYNC
SYNC SELECT SW
Q5, D3, 4
SYNC SELECT CONTROL
Q701~712
D701~705
D709,710
SYNC AGC
Q713~717
D706~708
COMP SYNC SEP
V. SYNC SEP.
COMP SYNC
V. SYNC
BLUE
GREEN
RED
Y
Q2
BUFFER
COMP VIDEO
LOCAL/REMOTE
IC3
Q3,4
KILLER SW
A1 GND
B1 GND
A2 COMP SYNC
B2 V.S.S
A3 B.OUT
B3 B.OUT
A4 GND
B4 GND
A5 G.OUT
B5 G.OUT
A6 GND
B6 GND
A7 R.OUT
B7 R.OUT
A8 GND
B8 GND
A9 DY.IN
B9 DY.IN
A10 GND
B10 GND
A11 S.SW
B11
A12 RGB.SW
B12
A13
B13 INT/EXT R
A14
B14 INT/EXT L
A15
B15 LOCAL/REMOTE
A16
B16 AUTO/B&W R
A17 KILLER
B17 AUTO/B&W L
A18 COMP.OUT
B18 A/B R
A19 T.SW
B19 A/B L
A20 +12V
B20 +12V
A21 -12V
B21 -12V
A22 GND
B22 GND
BA (SYNC SELECT & SYNC SEP)

## 3-2. BG BOARD

### 3-2-1. Luminance Signal Circuit

**Filter SW**

IC1 works as a selector switch of composite video signal or luminance signal derived from Y/C separation circuit. This IC activates by either FILTER-SW in right side drawer or killer signal.

**Aperture Control**

Aperture control circuit is composed of DL1(delay line), transistors Q5, 7, 8 and IC2. IC2 operates as a variable resistor. Resistance value between Pin①and③is controlled by the potential between pin ③ and pin ④, also pin ① and pin ⑥.

Input signal: $e_{\tau o}$,
Delayed signal by delay line: $e_{\tau 1}$
Second delayed signal: $e_{\tau 2}$

See Figure 4
$e_1$ (at base of transistor Q5) is obtained as below due to the combination of direct wave and reflected wave by DL1

$$e_1 = (e_{\tau o} + e_{\tau 2})/2$$

Therefore eo is

$$eo = -(e_{\tau 1} + \frac{1}{K}(e_{\tau 1} - \frac{1}{2}(e_{\tau o} + e_{\tau 2})))$$

K: variable constant

In the above equation, 1st term shows waveform A in Figure 5 and 2nd term shows waveform B. When K is variable, amount of preshoot and overshoot can be varied.
Switch S1 is used for selection of boost frequency.

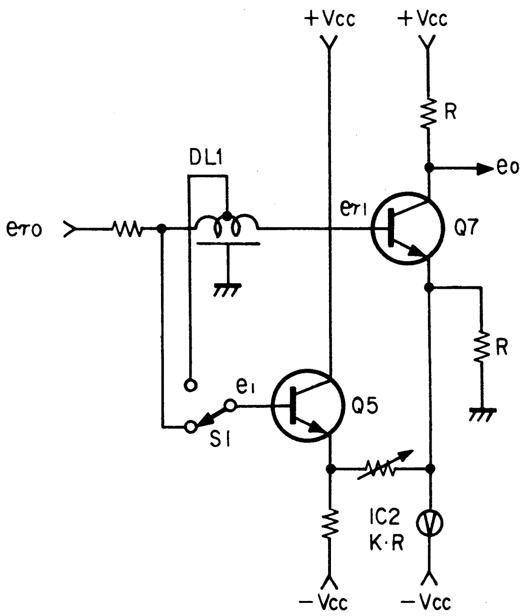

+Vcc
+Vcc
R
eo
DL1
$e_{\tau 1}$
Q7
$e_{\tau o}$
R
$e_1$
Q5
S1
IC2
K·R
−Vcc
−Vcc

*Figure 4*

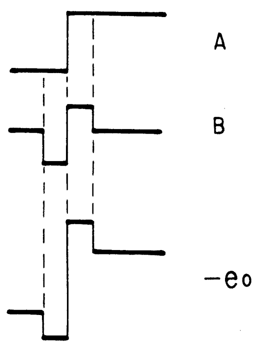


*Figure 5*

**Y Delay, Y Buffer Amplifier**

Y/C delay time can be matched by delay line DL2 and Y signal is amplified and fed to the next stage.

### 3-2-2. Color Gain Control Circuit

In this section (R-Y) signal processing is described as below, but (B-Y) signal is processed by the same way as (R-Y) signal.

**R-Y Amplifier and Clamping**

The R-Y color difference signal from the decoder board is amplified at the amplifier composed of transistors Q21 and Q22 and clamped at the Horizontal Sync by transistors Q23 and IC3.

**R-Y Gain Control Amplifiter**

This is a variable gain control amplifier composed of variable resistor element of IC4 and transistors Q25-Q27. Gain of this amplifier can be controlled by the color gain control voltage at the pin ⑫ of IC4.

**AGC Pulse Generator**

Generates the reference pulse for AGC (Automatic Gain Control) of color gain control circuit.

**Gain Control Amplifier for AGC Pulse**

Circuit is the same as R-Y GAIN CONTROL AMPLIFIER. Gain of this amplifier is controlled by the voltage at pin ⑧ of IC4.

**Color Gain Control**

AGC pulse, which is output signal of Gain control amplifier for AGC pulse, is clamped by IC6 (2/3) and is made sampling by IC6 (3/3). Amplitude of AGC pulse and DC voltage supplied from CHROMA control on the front panel are compared and matched by IC7 (1/2) with controlling the above gain control amplifier. This control voltage is supplied to the control terminals of R-Y and B-Y gain control amplifiers and controls color gain.

### 3-2-3. G-Y MATRIX amplifier

G-Y signal is obtained by matrixing R-Y signal and B-Y signal with the amplifier composed of transistors Q44 and Q45.

### 3-2-4. NTSC MATRIX SW

NTSC MATRIX mode operation is obtained by the matrix circuit composed of resistor networks CP14-CP19, transistor Q29, Q30, Q39, Q40, Q49, Q50 and IC5.
IC5 works as a switch

### 3-2-5. Vector Output Circuit

**R-Y Vector Output Gain Switcher**

Vector output levels are compensated for each color standards, NTSC, PAL and SECAM.

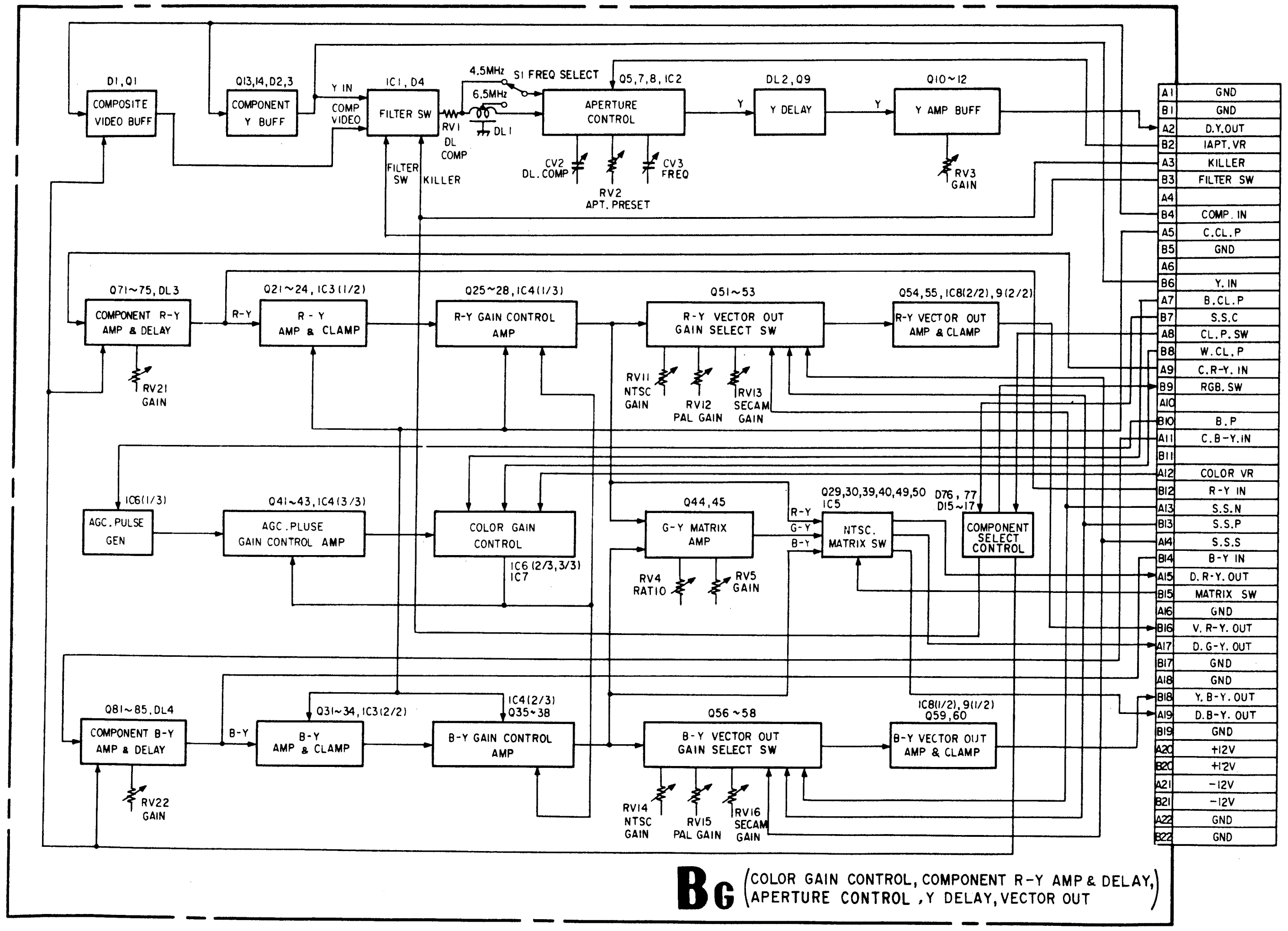
**R-Y Vector Output Amplifier and Clamping**

Vector output signal is amplified by IC9 (2/2) and transistor Q54 and clamped by IC8 and transistor Q55 for the suitable operation.

### 3-2-6. COMPONENT R-Y Amplifier and Delay Circuit

R-Y signal of COMPONENT signal is compensated with amplitude, porality and delay time to match the R-Y signal of decoder output.

## BLOCK DIAGRAM OF BG BOARD


D1, Q1
COMPOSITE VIDEO BUFF
Q13,14, D2,3
COMPONENT Y BUFF
Y IN
COMP VIDEO
IC1, D4
FILTER SW
RV1 DL COMP
FILTER SW
KILLER
4.5MHz
6.5MHz
S1 FREQ SELECT
DL1
Q5,7,8, IC2
APERTURE CONTROL
CV2 DL.COMP
RV2 APT. PRESET
CV3 FREQ
Y
DL2, Q9
Y DELAY
Y
Q10~12
Y AMP BUFF
RV3 GAIN
Q71~75, DL3
COMPONENT R-Y AMP & DELAY
RV21 GAIN
R-Y
Q21~24, IC3(1/2)
R - Y AMP & CLAMP
Q25~28, IC4(1/3)
R-Y GAIN CONTROL AMP
Q51~53
R-Y VECTOR OUT GAIN SELECT SW
RV11 NTSC GAIN
RV12 PAL GAIN
RV13 SECAM GAIN
Q54,55, IC8(2/2), 9(2/2)
R-Y VECTOR OUT AMP & CLAMP
IC6(1/3)
AGC. PULSE GEN
Q41~43, IC4(3/3)
AGC. PLUSE GAIN CONTROL AMP
COLOR GAIN CONTROL
IC6(2/3,3/3) IC7
Q44,45
G-Y MATRIX AMP
RV4 RATIO
RV5 GAIN
R-Y
G-Y
B-Y
Q29,30,39,40,49,50 IC5
NTSC. MATRIX SW
D76, 77 D15~17
COMPONENT SELECT CONTROL
Q81~85, DL4
COMPONENT B-Y AMP & DELAY
RV22 GAIN
B-Y
Q31~34, IC3(2/2)
B-Y AMP & CLAMP
IC4(2/3) Q35~38
B-Y GAIN CONTROL AMP
Q56~58
B-Y VECTOR OUT GAIN SELECT SW
RV14 NTSC GAIN
RV15 PAL GAIN
RV16 SECAM GAIN
IC8(1/2), 9(1/2) Q59,60
B-Y VECTOR OUT AMP & CLAMP
A1 GND
B1 GND
A2 D.Y.OUT
B2 IAPT.VR
A3 KILLER
B3 FILTER SW
A4
B4 COMP. IN
A5 C.CL.P
B5 GND
A6
B6 Y. IN
A7 B.CL.P
B7 S.S.C
A8 CL.P.SW
B8 W.CL.P
A9 C.R-Y. IN
B9 RGB. SW
A10
B10 B.P
A11 C.B-Y.IN
B11
A12 COLOR VR
B12 R-Y IN
A13 S.S.N
B13 S.S.P
A14 S.S.S
B14 B-Y IN
A15 D.R-Y.OUT
B15 MATRIX SW
A16 GND
B16 V.R-Y.OUT
A17 D.G-Y.OUT
B17 GND
A18 GND
B18 Y.B-Y.OUT
A19 D.B-Y.OUT
B19 GND
A20 +12V
B20 +12V
A21 −12V
B21 −12V
A22 GND
B22 GND
BG (COLOR GAIN CONTROL, COMPONENT R-Y AMP & DELAY, APERTURE CONTROL ,Y DELAY, VECTOR OUT)

## 3-3. BH BOARD

### 3-3-1. Switching Circuit Between Y (Luminance) Signal, Color Difference Signal and RGB Signal, AGC Pulse Insertion, Y-C Matrix

**Switching Circuit of Y Signal, Crosshatch Signal and SET UP Signal, Buffer**
Y signal, crosshatch signal and SET UP signal are selected by the switcher (IC1 (1/3) (2/3)) and selected signal is output via buffer Q1.

**Switching Circuit of R-Y Signal, Red Signal and SET UP Signal, Buffer (Same as B-Y, G-Y Signal)**
R-Y signal, Red signal, SET UP signal are selected by IC2 (1/3, 2/3) and selected signal is output via buffer Q4.

**Y Signal Screening (Same as R-Y, B-Y, and G-Y Signals)**
The signal is performed SAMPLE and HOLD (S/H) at the back porch of signal by transistor Q2 and IC5 (2/2). Y screening is performed by replacing S/H output signal, by the original signal.
For color difference signals screening is made at the Horizontal Sync portion.

**Red Matrix, Blue Only SW, Buffer (Same as Green and Blue)**
Red is obtained by Y-C matrix circuit composed of resistor network CP9 from color difference signals.
AGC pulse from pulse generator is inserted into Red signal for contrast control.
IC7 activates by the Blue only SW on the front panel. Blue only SW is used for the display of blue signal as a monochrome picture.

### 3-3-2. Contrast Control, Brightness Control, Peak Limitter

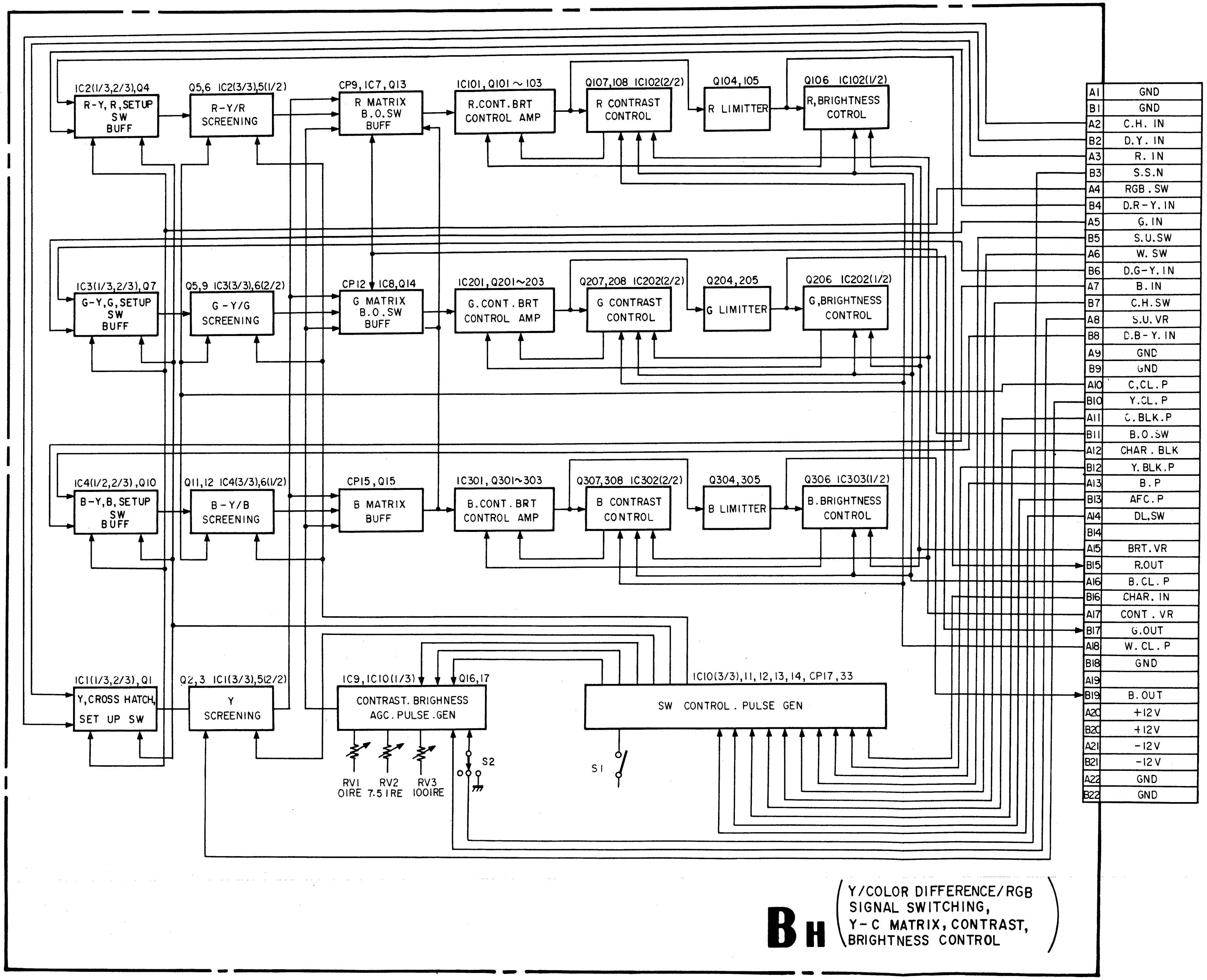
**Red Contrast, and Brightness Control Amplifier (Same as Green and Blue)**
This is a variable gain control amplifier composed of variable resistor element IC101 and transistor Q102 and Q103. By controlling the voltage at pin ④ of IC101, contrast control is performed, and brightness control is done by controlling the bias voltage of transistor Q102.

**Red limitter (Same as Green and Blue)**
When excess input signal comes in , amplitude is limitted by the limitter composed of transistors Q104 and Q105.

**Red Contrast Control**
AGC pulse inserted in Red signal is clamped by transistor Q107 and sampled by transistor Q108.
Amplitude of above AGC pulse is compared with the reference voltage applied from CONTRAST control on the front panel in IC102 (2/2).
Contrast control is performed by controlling the gain of Red contrast brightness control amplifier so that these voltages may match.

**Red Brightness Control (Same as Green and Blue)**
The black level of Red signal is performed SAMPLE and HOLD (S/H) by transistor Q106. This S/H voltage is compared with the reference voltage applied from BRIGHTNESS control on the front panel in IC102 (1/2). BRIGHTNESS control is performed by controlling the bias of Red contrast BRIGHTNESS control amplifier so that these voltages may match.

BLOCK DIAGRAM OF BH BOARD


IC2(1/3,2/3),Q4
R-Y, R, SETUP SW BUFF
Q5,6 IC2(3/3),5(1/2)
R-Y/R SCREENING
CP9, IC7, Q13
R MATRIX B.O.SW BUFF
IC101, Q101 ~ 103
R.CONT.BRT CONTROL AMP
Q107,108 IC102(2/2)
R CONTRAST CONTROL
Q104, 105
R LIMITTER
Q106 IC102(1/2)
R, BRIGHTNESS COTROL
IC3(1/3,2/3),Q7
G-Y, G, SETUP SW BUFF
Q5,9 IC3(3/3),6(2/2)
G-Y/G SCREENING
CP12 IC8,Q14
G MATRIX B.O.SW BUFF
IC201, Q201~203
G.CONT.BRT CONTROL AMP
Q207,208 IC202(2/2)
G CONTRAST CONTROL
Q204,205
G LIMITTER
Q206 IC202(1/2)
G, BRIGHTNESS CONTROL
IC4(1/2,2/3),Q10
B-Y, B, SETUP SW BUFF
Q11,12 IC4(3/3),6(1/2)
B-Y/B SCREENING
CP15, Q15
B MATRIX BUFF
IC301, Q301~303
B.CONT.BRT CONTROL AMP
Q307,308 IC302(2/2)
B CONTRAST CONTROL
Q304,305
B LIMITTER
Q306 IC303(1/2)
B.BRIGHTNESS CONTROL
IC1(1/3,2/3),Q1
Y, CROSS HATCH, SET UP SW
Q2,3 IC1(3/3),5(2/2)
Y SCREENING
IC9, IC10(1/3)
Q16,17
CONTRAST. BRIGHNESS AGC. PULSE. GEN
RV1 0IRE
RV2 7.5 IRE
RV3 100IRE
S2
IC10(3/3),11,12,13,14, CP17,33
SW CONTROL . PULSE GEN
S1
A1 GND
B1 GND
A2 C.H. IN
B2 D.Y. IN
A3 R. IN
B3 S.S.N
A4 RGB . SW
B4 D.R-Y. IN
A5 G. IN
B5 S.U.SW
A6 W. SW
B6 D.G-Y. IN
A7 B. IN
B7 C.H.SW
A8 S.U. VR
B8 D.B-Y. IN
A9 GND
B9 GND
A10 C,CL.P
B10 Y.CL.P
A11 C.BLK.P
B11 B.O.SW
A12 CHAR . BLK
B12 Y. BLK.P
A13 B.P
B13 AFC.P
A14 DL.SW
B14
A15 BRT.VR
B15 R.OUT
A16 B.CL.P
B16 CHAR. IN
A17 CONT . VR
B17 G.OUT
A18 W. CL. P
B18 GND
A19
B19 B. OUT
A20 +12V
B20 +12V
A21 -12V
B21 -12V
A22 GND
B22 GND
BH
Y/COLOR DIFFERENCE/RGB SIGNAL SWITCHING, Y-C MATRIX, CONTRAST, BRIGHTNESS CONTROL

## 3-4. BI BOARD

### 3-4-1. Red Screen SW, AGC Pulse Insertion
(Same as Green and Blue)

Red signal can be cut off by RED SCREEN SW on the front panel. Horizontal rate AGC pulse is removed and the reference pulse is inserted in the signal for the GAIN and BIAS adjustment of video output amplifier and for the beam control circuit.

### 3-4-2. Red Limitter, Gain and Bias Control Amplifier

This limitter is used for limiting the excess input level of the signal below 0V DC.

The GAIN BIAS CONTROL amplifier is composed of variable resistor element and transistors as same as contrast control amplifier' (See section of BH board)

### 3-4-3. Red Feedback Amplifier, Red Gain Control
Red Bias Control Circuit

RED FEEDBACK amplifier inverts the phase of the signal derived from VIDEO OUTPUT amplifier via NF BUFF (Negative Feedback Buffer) in BK board.

The BIAS of VIDEO OUTPUT AMPLIFIER is controlled by RED BIAS CONTROL circuit so that the black level of inverted signal may be 0V DC.

(This time, black level of VIDEO OUTPUT will be −90V DC.)

RED GAIN CONTROL circuit controls the gain of VIDEO OUTPUT AMPLIFIER so that the level of the reference pulse may match to the voltage at pin ③ of IC103.

(When GAIN control (RED) in the drawer is turned, the level of the reference pulse inserted in section 1 changes. And amplitude (Gain) of Red signal changes so that the amplitude of the reference pulse derived from RED FEEDBACK amplifier may be maintained constant by GAIN CONTROL circuit.)

### 3-4-4. Red Cathode Current Detection, Red G1 Control Circuit (I-V Conversion)

Refer to the BK board section of beam control circuit

### 3-4-5. ABL Detector, Drive Control, Over Drive

The reference level of GAIN CONTROL circuit is controlled by ABL detector and DRIVE CONTROL so that the cathode current of CRT exceeds the predetermined (Preset) value to prevent damage of CRT. OVER DRIVE circuit lights up the OVER LOAD LED on the front panel for warning.

### 3-4-6. G2 Control Circuit

Circuit diagram of G2 control circuit is shown in Figure 6.

The signal for G1 BIAS control is fed to base of the transistor Q11 from RED G1 BIAS control circuit. (Same as G and B)

Only one of the highest voltages among the base voltages of transistors Q11-Q13 is turned on and is compared with the reference voltage of base voltage Q14.

And this circuit drives transistor Q105 located in PA board so that Transistor Q105 in PA board drives G2 voltage for adjusting cut off level of CRT.

Base voltage of transistor Q14 (reference voltage) is set so that the voltage of Black level at G1 electrode may be −120V DC and maintain Ekco (cut off voltage) −120V constant.

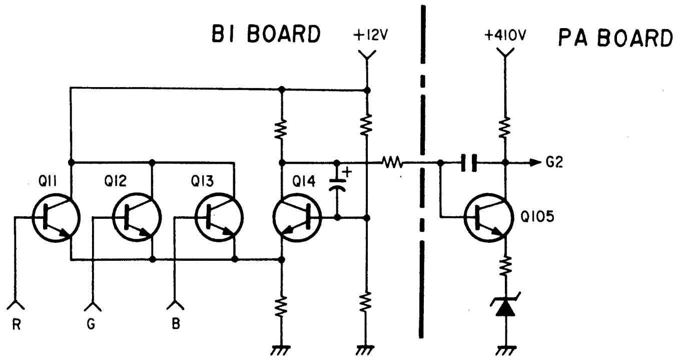
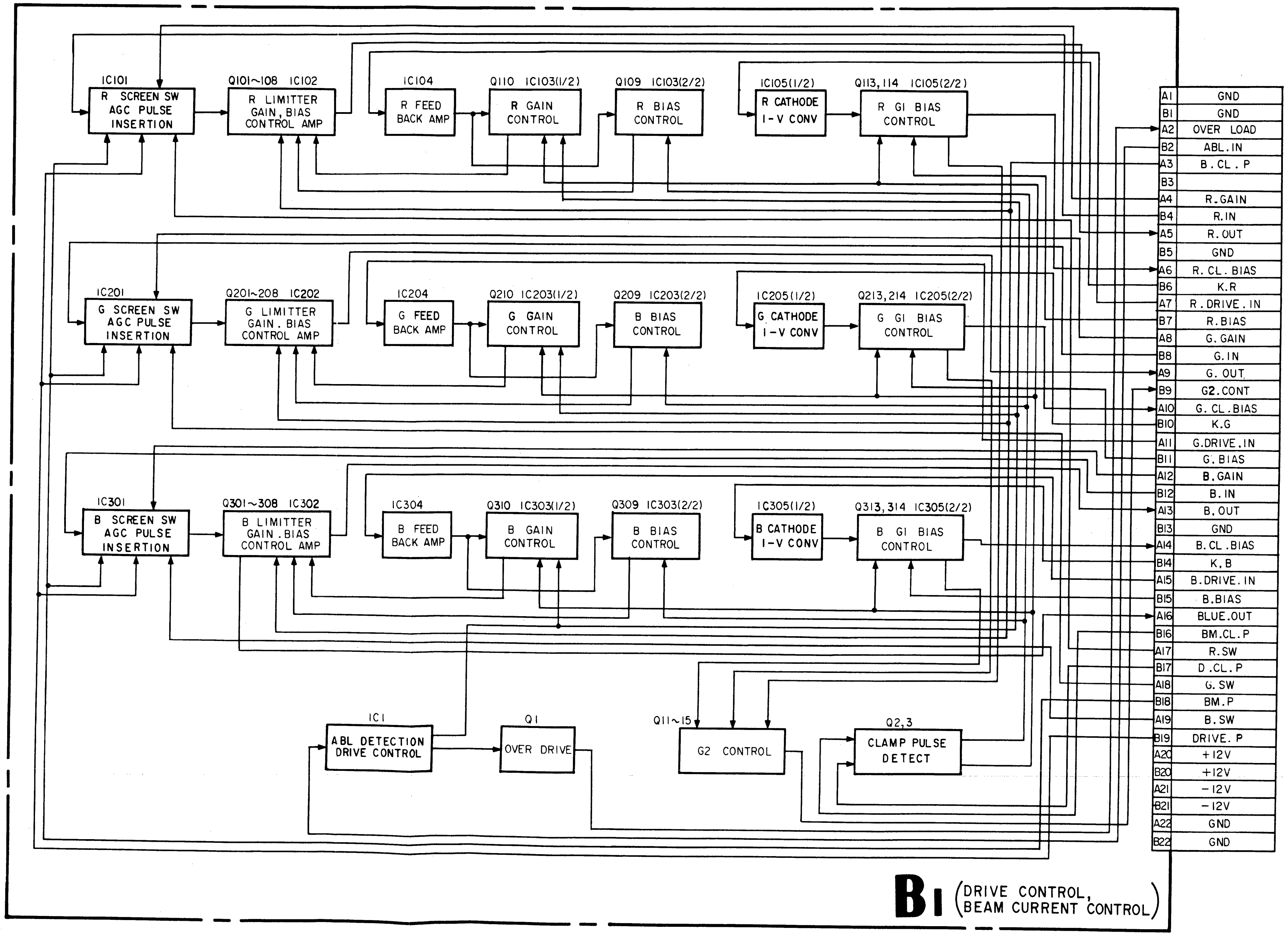

BI BOARD
+12V
+410V
PA BOARD
Q11
Q12
Q13
Q14
G2
Q105
R
G
B

Figure 6

### BLOCK DIAGRAM OF BI BOARD


IC101
R SCREEN SW AGC PULSE INSERTION
Q101~108 IC102
R LIMITTER GAIN, BIAS CONTROL AMP
IC104
R FEED BACK AMP
Q110 IC103(1/2)
R GAIN CONTROL
Q109 IC103(2/2)
R BIAS CONTROL
IC105(1/2)
R CATHODE I-V CONV
Q113, 114 IC105(2/2)
R G1 BIAS CONTROL
IC201
G SCREEN SW AGC PULSE INSERTION
Q201~208 IC202
G LIMITTER GAIN. BIAS CONTROL AMP
IC204
G FEED BACK AMP
Q210 IC203(1/2)
G GAIN CONTROL
Q209 IC203(2/2)
B BIAS CONTROL
IC205(1/2)
G CATHODE I-V CONV
Q213, 214 IC205(2/2)
G G1 BIAS CONTROL
IC301
B SCREEN SW AGC PULSE INSERTION
Q301~308 IC302
B LIMITTER GAIN. BIAS CONTROL AMP
IC304
B FEED BACK AMP
Q310 IC303(1/2)
B GAIN CONTROL
Q309 IC303(2/2)
B BIAS CONTROL
IC305(1/2)
B CATHODE I-V CONV
Q313, 314 IC305(2/2)
B G1 BIAS CONTROL
IC1
ABL DETECTION DRIVE CONTROL
Q1
OVER DRIVE
Q11~15
G2 CONTROL
Q2, 3
CLAMP PULSE DETECT
A1 GND
B1 GND
A2 OVER LOAD
B2 ABL. IN
A3 B. CL. P
B3
A4 R. GAIN
B4 R. IN
A5 R. OUT
B5 GND
A6 R. CL. BIAS
B6 K. R
A7 R. DRIVE. IN
B7 R. BIAS
A8 G. GAIN
B8 G. IN
A9 G. OUT
B9 G2. CONT
A10 G. CL. BIAS
B10 K. G
A11 G. DRIVE. IN
B11 G. BIAS
A12 B. GAIN
B12 B. IN
A13 B. OUT
B13 GND
A14 B. CL. BIAS
B14 K. B
A15 B. DRIVE. IN
B15 B. BIAS
A16 BLUE. OUT
B16 BM. CL. P
A17 R. SW
B17 D. CL. P
A18 G. SW
B18 BM. P
A19 B. SW
B19 DRIVE. P
A20 +12V
B20 +12V
A21 −12V
B21 −12V
A22 GND
B22 GND
BI (DRIVE CONTROL, BEAM CURRENT CONTROL)

## 3-5. SYNC PROCESSOR, PULSE GENERATOR (BJ BOARD)

### 3-5-1. 1H Pulse Processing

The composite sync is separated from incoming signal at BA board. And 1H sync is made by separating V sync and equalizing pulse from composite sync.
Also H sync which has constant pulse width is made from 1H sync.

### 3-5-2. 2fH Multivibrator

This circuit generates 2fH rate pulse from H rate flyback pulse.

### 3-5-3. Vertical Counter

The 2fH rate pulse is counted down to generate Vertical rate trigger pulse for vertical deflection circuit.
When there is no incoming signal, trigger pulse is generated by vertical counter.
When there is incoming signal with V sync, this counter circuit is reset by V sync and generates trigger pulse synchronized with V sync.
Also in order to increase stability of vertical scanning, noise gating process is made during V sync period.

### 3-5-4. V Sync and Delay

V sync and V BLANKING pulses are generated by output trigger pulse from vertical counter.
And when V DELAY SW on the front panel is selccted ON, these pulses are generated in a V/2 delayed position relative to the V sync position of incoming signal.

### 3-5-5. Crosshatch Generator

Internal crosshatch signal is made as follows.
The vertical lines are generated by approx. 18fH rate pulses synchronized with flyback pulse.
And flyback pulse is counted down to generate horizontal lines.

### 3-5-6. Burst Gate Pulse, Y-CLAMP Pulse, C-CLAMP Pulse Generator

The Burst Gate Pulse (B.G.P.), clamp pulse for luminance signal (Y.CL.P) and clamp pulse for color difference signal (C.CL.P) are generated from 1H sync via LCR network and transistors.

### 3-5-7. Picture Set Up Pulse Generator

This is the gate pulse generator for picture set-up function, and consists of mono multipliers.

### 3-5-8. Split, Y Blanking, C Blanking Pulse Generator

Y BLANKING pulse (Y BLK P) and C BLANKING pulse (C BLK P) are generated. These pulses are used for the purpose of DC restoration of color difference signal, Y signal and RGB signal. DC restoration is made by inserting the black reference signal during blanking period in the signal. Also C.BLK. pulse is mixed with vertical rate blanking signal for SPLIT display.

### 3-5-9. Horizontal Rate AGC and Clamp Pulse Generator

COLOR GAIN control, CONTRAST control and BRIGHTNESS control are stabilized by insertion of reference signal and using feedback circuit. Horizontal rate BLACK pulse (B.P), BLACK CLAMP pulse (B.CL.P) and WHITE CLAMP pulse (W. CL.P) are generated here.

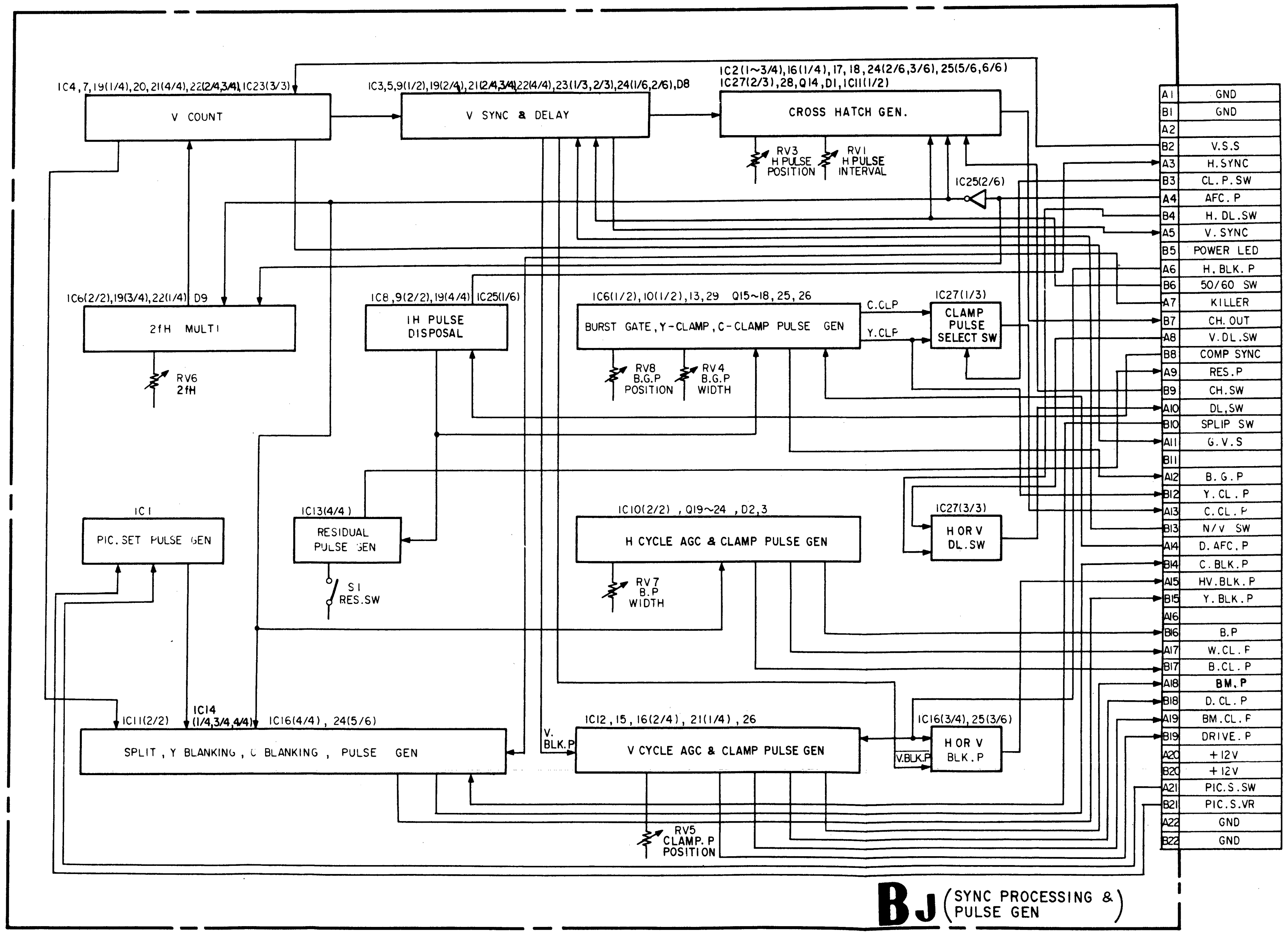
### 3-5-10. Vertical Rate AGC and Clamp Pulse Generator

In this model, BEAM CONTROL circuit is used for high stability in white balance.
The reference signal is inserted in the signal for gain control circuit in video output amplifier and for beam control circuit. Vertical rate pulses are used for this purpose.
Vertical rate BEAM PULSE (BM.P) DRIVE PULSE (DRIVE.P) and BEAM CLAMP PULSE (BM.CL.P) are generated here.

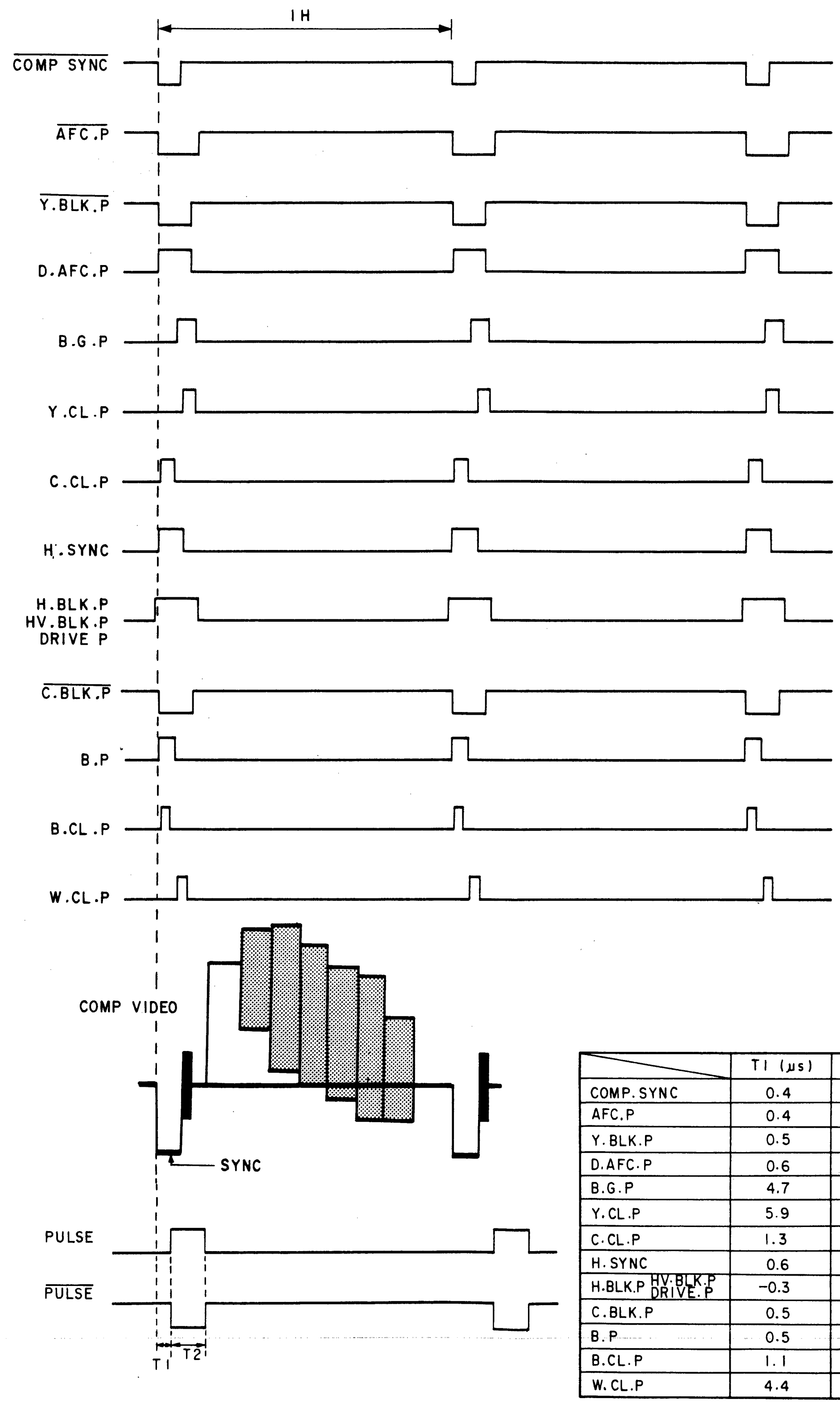
### 3-5-11. Others

Black reference is determined at the position of clamping in black reference insertion circuit for both color difference signal and RGB signal. Accordingly C.CL.P is used as clamp pulse for color difference signal processing and Y.CL.P is for RGB signal. CLAMP PULSE SELECTION SW switches C.CL.P.or Y CL.P to the clamp pulse for the insertion of black reference.

### BLOCK DIAGRAM OF BJ BOARD


IC4,7,19(1/4),20,21(4/4),22(2/4,3/4),IC23(3/3)
V COUNT
IC3,5,9(1/2),19(2/4),21(2/4,3/4),22(4/4),23(1/3,2/3),24(1/6,2/6),D8
V SYNC & DELAY
IC2(1~3/4),16(1/4),17,18,24(2/6,3/6),25(5/6,6/6)
IC27(2/3),28,Q14,D1,IC11(1/2)
CROSS HATCH GEN.
RV3 H PULSE POSITION
RV1 H PULSE INTERVAL
IC25(2/6)
IC6(2/2),19(3/4),22(1/4) D9
2fH MULTI
RV6 2fH
IC8,9(2/2),19(4/4) IC25(1/6)
1H PULSE DISPOSAL
IC6(1/2),10(1/2),13,29 Q15~18,25,26
BURST GATE,Y-CLAMP,C-CLAMP PULSE GEN
RV8 B.G.P POSITION
RV4 B.G.P WIDTH
C.CLP
Y.CLP
IC27(1/3)
CLAMP PULSE SELECT SW
IC1
PIC.SET PULSE GEN
IC13(4/4)
RESIDUAL PULSE GEN
S1 RES.SW
IC10(2/2), Q19~24, D2,3
H CYCLE AGC & CLAMP PULSE GEN
RV7 B.P WIDTH
IC27(3/3)
H OR V DL.SW
IC11(2/2)
IC14 (1/4,3/4,4/4)
IC16(4/4), 24(5/6)
SPLIT, Y BLANKING, C BLANKING, PULSE GEN
V. BLK.P
IC12,15,16(2/4),21(1/4),26
V CYCLE AGC & CLAMP PULSE GEN
RV5 CLAMP.P POSITION
IC16(3/4),25(3/6)
V.BLK.P
H OR V BLK.P
A1 GND
B1 GND
A2
B2 V.S.S
A3 H.SYNC
B3 CL.P.SW
A4 AFC.P
B4 H.DL.SW
A5 V.SYNC
B5 POWER LED
A6 H.BLK.P
B6 50/60 SW
A7 KILLER
B7 CH.OUT
A8 V.DL.SW
B8 COMP SYNC
A9 RES.P
B9 CH.SW
A10 DL,SW
B10 SPLIP SW
A11 G.V.S
B11
A12 B.G.P
B12 Y.CL.P
A13 C.CL.P
B13 N/V SW
A14 D.AFC.P
B14 C.BLK.P
A15 HV.BLK.P
B15 Y.BLK.P
A16
B16 B.P
A17 W.CL.F
B17 B.CL.P
A18 BM.P
B18 D.CL.P
A19 BM.CL.F
B19 DRIVE.P
A20 +12V
B20 +12V
A21 PIC.S.SW
B21 PIC.S.VR
A22 GND
B22 GND
BJ (SYNC PROCESSING & PULSE GEN)

## TIMING CHART OF MAJOR PULSE (BJ BOARD)


1H
COMP SYNC
AFC.P
Y.BLK.P
D.AFC.P
B.G.P
Y.CL.P
C.CL.P
H.SYNC
H.BLK.P
HV.BLK.P
DRIVE P
C.BLK.P
B.P
B.CL.P
W.CL.P
COMP VIDEO
SYNC
PULSE
PULSE
T1
T2

|  | T1 (μs) | T2 (μs) |
|---|---|---|
| COMP.SYNC | 0.4 | 4.8 |
| AFC.P | 0.4 | 9.0 |
| Y.BLK.P | 0.5 | 7.2 |
| D.AFC.P | 0.6 | 7.2 |
| B.G.P | 4.7 | 4.1 |
| Y.CL.P | 5.9 | 2.6 |
| C.CL.P | 1.3 | 3.0 |
| H.SYNC | 0.6 | 5.5 |
| H.BLK.P HV.BLK.P<br>DRIVE.P | −0.3 | 9.0 |
| C.BLK.P | 0.5 | 7.2 |
| B.P | 0.5 | 3.5 |
| B.CL.P | 1.1 | 1.8 |
| W.CL.P | 4.4 | 1.8 |

*Figure 7*

## FIELD 1 VERTICAL BLANKING

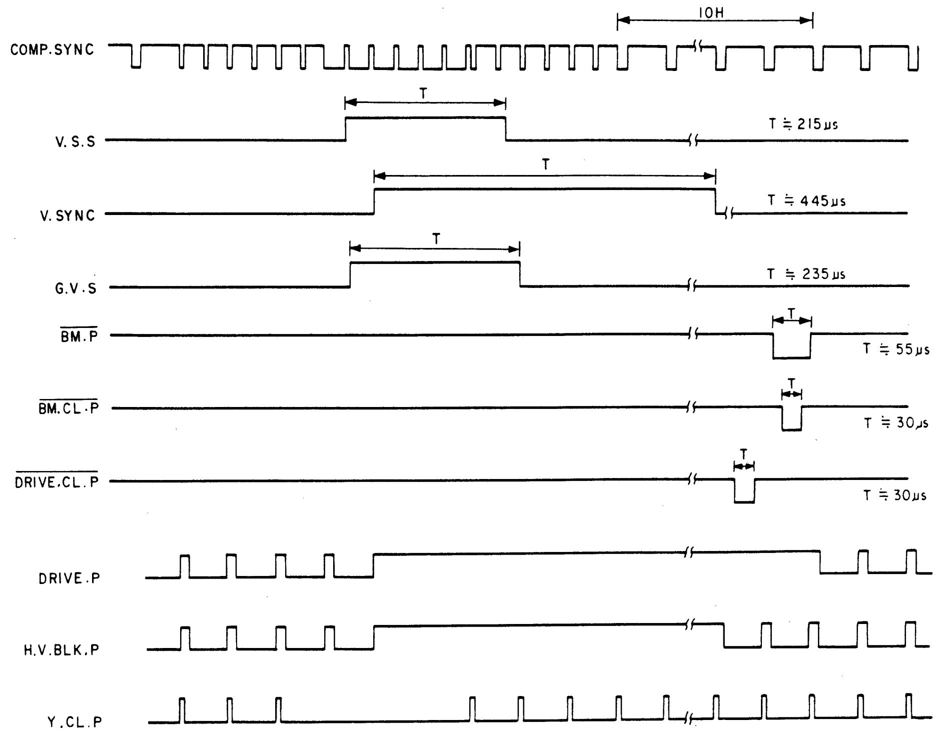

10H
COMP.SYNC
T
V.S.S
T ≒ 215μs
T
V.SYNC
T ≒ 445μs
T
G.V.S
T ≒ 235μs
T
BM.P
T ≒ 55μs
T
BM.CL.P
T ≒ 30μs
T
DRIVE.CL.P
T ≒ 30μs
DRIVE.P
H.V.BLK.P
Y.CL.P

*Figure 8*

## FIELD 2 VERTICAL BLANKING

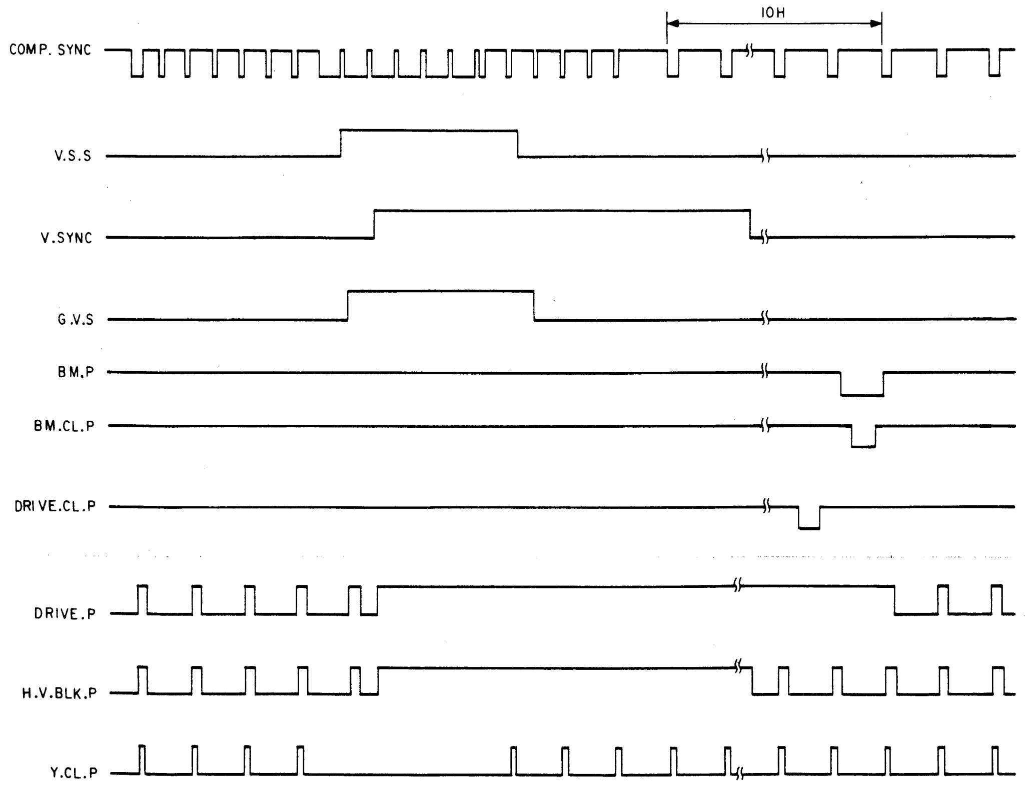

10H
COMP. SYNC
V.S.S
V.SYNC
G.V.S
BM.P
BM.CL.P
DRIVE.CL.P
DRIVE.P
H.V.BLK.P
Y.CL.P

*Figure 9*

## 3-6. BK BOARD

Following are described about Red channal. Green and Blue channel are the some.

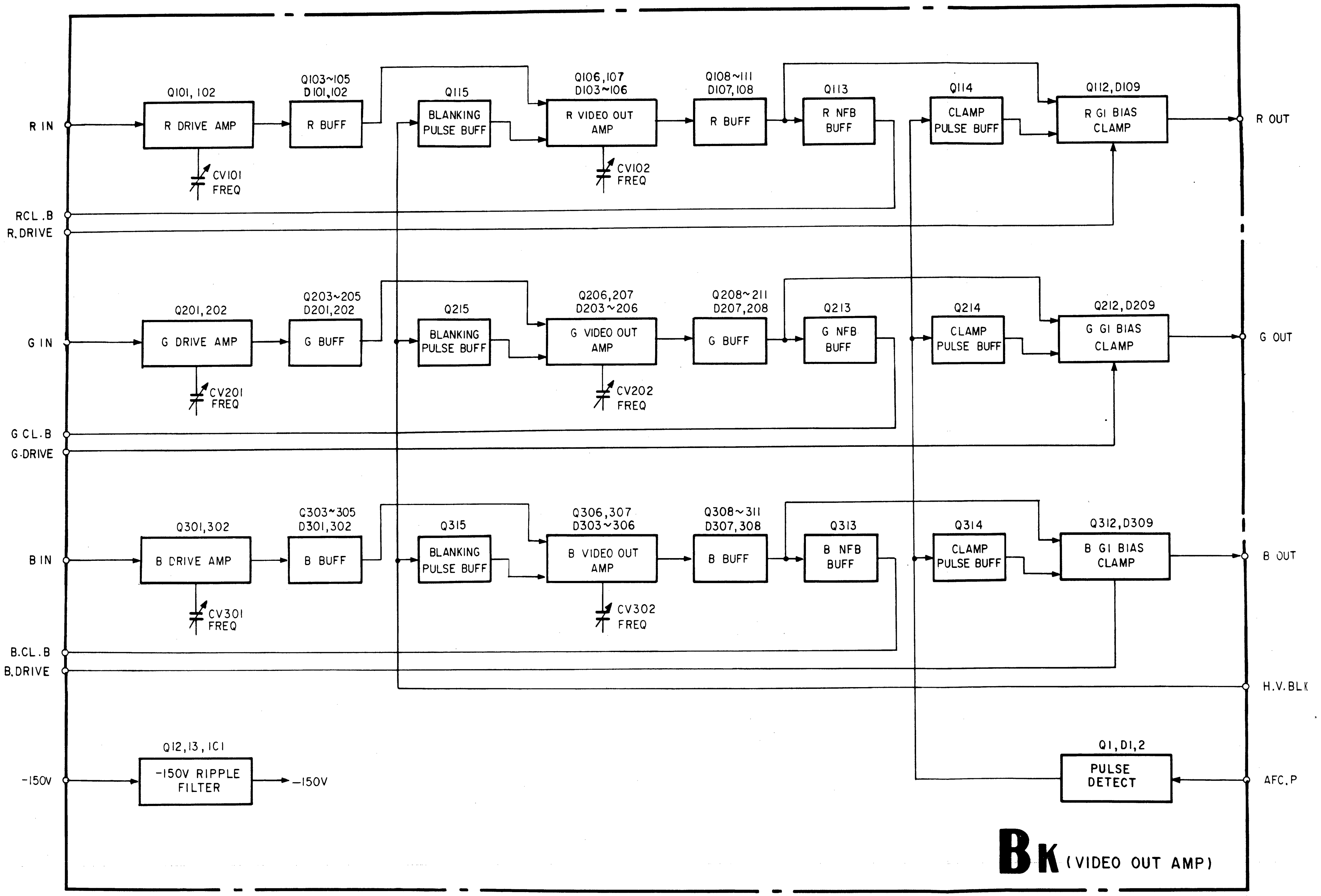
### 3-6-1. Red Drive Amplifier, Red Buffer

This circuit drives final stage of video output amplifier. Gain is approx. 2

### 3-6-2. Red Video Output Amplifier and Buffer

This is the final stage amplifier to obtain amplitude enough to drive G1 of CRT.
Gain is approx. 14
Also in this amplifier, BLANKING pulse is mixed with video signal.

BLOCK DIAGRAM OF BK BOARD


R IN
Q101, 102
R DRIVE AMP
CV101
FREQ
Q103~105
D101,102
R BUFF
Q115
BLANKING
PULSE BUFF
Q106,107
D103~106
R VIDEO OUT
AMP
CV102
FREQ
Q108~111
D107,108
R BUFF
Q113
R NFB
BUFF
Q114
CLAMP
PULSE BUFF
Q112,D109
R G1 BIAS
CLAMP
R OUT
RCL.B
R.DRIVE
G IN
Q201,202
G DRIVE AMP
CV201
FREQ
Q203~205
D201,202
G BUFF
Q215
BLANKING
PULSE BUFF
Q206,207
D203~206
G VIDEO OUT
AMP
CV202
FREQ
Q208~211
D207,208
G BUFF
Q213
G NFB
BUFF
Q214
CLAMP
PULSE BUFF
Q212,D209
G G1 BIAS
CLAMP
G OUT
G CL.B
G.DRIVE
B IN
Q301,302
B DRIVE AMP
CV301
FREQ
Q303~305
D301,302
B BUFF
Q315
BLANKING
PULSE BUFF
Q306,307
D303~306
B VIDEO OUT
AMP
CV302
FREQ
Q308~311
D307,308
B BUFF
Q313
B NFB
BUFF
Q314
CLAMP
PULSE BUFF
Q312,D309
B G1 BIAS
CLAMP
B OUT
B.CL.B
B.DRIVE
H.V.BLK
-150V
Q12,13,IC1
-150V RIPPLE
FILTER
—150V
Q1,D1,2
PULSE
DETECT
AFC.P
BK (VIDEO OUT AMP)

### 3-7. BEAM CONTROL CIRCUIT (BI, BK BOARDS)

Block diagram is shown in Figure 10.

### 3-7-1. Detection of Cathode Current and I-V Conversion (BI BOARD)

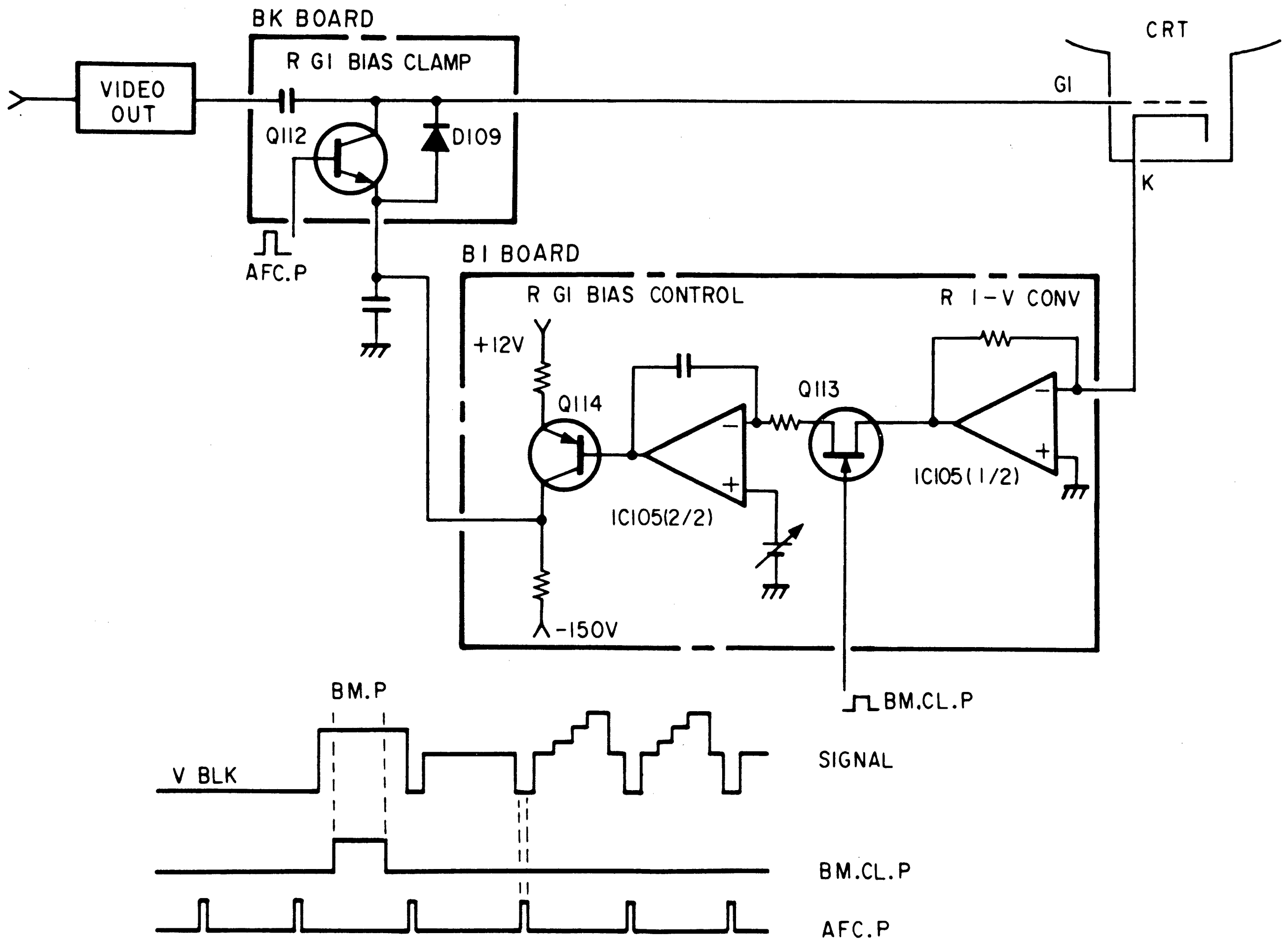
Cathode current is detected as a voltage by using IC105 (1/2)

### 3-7-2. Red G1 Bias Control (BI BOARD)

BMP is inserted in the signal during vertical blanking in BI board. This BMP is detected as a cathode current and sampled by BM CLP applied to FET Q113.
This bias control circuit controls the base voltage of transistor Q114 so that converted voltage from cathode current and the reference voltage may match.

### 3-7-3. Red G1 Bias Clamp Circuit (BK BOARD)

Video output signal is clamped at the voltage of collector of transistor Q114 in BI board by using transistor Q112.



BK BOARD
R GI BIAS CLAMP
VIDEO OUT
Q112
D109
AFC.P
CRT
GI
K
BI BOARD
R GI BIAS CONTROL
R I-V CONV
+12V
Q114
Q113
IC105(2/2)
IC105(1/2)
-150V
BM.CL.P
BM.P
V BLK
SIGNAL
BM.CL.P
AFC.P

*Figure 10*

## 3-8. PAL DEMODULATOR, Y TRAP CIRCUIT (BD BOARD)

The composite video signal (PAL) supplied from BA board is fed to transistor Q1 (buffer), then is supplied to the 4.43 MHz trap circuit with Y signal and to band pass filter with chrominance signal.

### 3-8-1. Chroma Band Pass Filter

The composite video signal obtained from at the emitter of transistor Q1 is fed to the Band pass filter composed of resistor R12, capacitor C7, C8, inductor L3 and transistor Q5.
The center frequency of this filter is adjusted to the subcarrier frequency (4.43 MHz) by L3, and chrominance signal is derivied from Q5.

### 3-8-2. Residual SW Circuit

The chrominance signal derivied at transistor Q5 is fed to analog switcher IC2.
When switch S1 on BJ board is set to ON position, residual pulse which has almost same phase as H sync is fed to control terminal of analog switcher (pin ③ of IC2) and screening is performed during H sync period.
When switch S1 on BJ board is set to OFF position, Low level signal (0V DC) is fed to control terminal and screening action is not performed. Thus residual switch circuit does not activate.
When there is residual subcarrier in the video signal, clamp level of color difference signal changes by turning switch S1 ON/OFF and therefore residual subcarrier can be checked on the picture as a color shift.

### 3-8-3. Chroma Amplifier Circuit

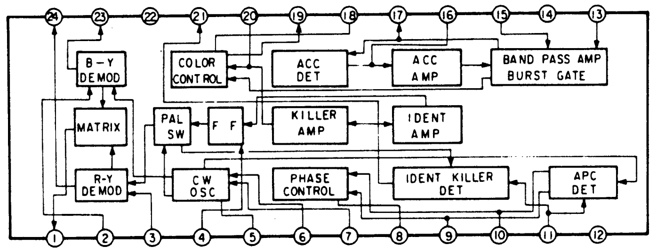
The chrominance signal from residual switch circuit (IC2 pin④) is fed to chroma amplifier circuit (Q19, Q36).
After the chroma signal is amplified by the inversion amplifier (gain: 1X), it is voltage divided by resistors R400 and R314 and then input to the R-Y input terminal (IC1, pin (3)) and B-Y input terminal (IC1, pin (2)) of the following demodulator circuit via the buffer (Q38).

### 3-8-4. Phase Control Circuit

The chrominance signal from residual switch is also fed to phase control circuit (Q6, Q7, Q8, Q9, D12).
In this circuit, a variable capacitance diode (D10) is used to control the phase of color burst signal.
Anode voltage of D10 is applied by variable resistor RV8 and preset adjustment of phase is made by this variable resistor.
When the PHASE control on the right side of the front panel is turned, DC level of phase control signal (board terminal A13) changes and this phase control signal is fed to the cathode of D10 via analog switcher (IC5). In this way, Burst phase of chrominance signal is controlled according to the DC level of the phase control signal.
When PAL-D is selected with the PAL switch inside the right side drawer, between pins ③ and ④ of IC5 becomes conductive and phase control becomes dependent on RV7, disabling the Phase Control of the right side front panel.
Analog switcher IC5 (1/3) activates to make short-circuit between input terminal pin ③ or ⑤ and output terminal pin④, only when COLOR STANDARD SELECTOR in the right side of drawer is selected to PAL and otherwise pin ⑤ kept open circuit.
As above phase controlled chrominance signal is derived from collector of transistor Q9 and burst signal in this signal is gated by IC6. The gated burst signal is fed to the burst input terminal pin ⑪ of demodulator IC1.

### 3-8-5. PAL Demodulator

Block diagram of IC used for PAL demodulator is shown in Figure 1.
This IC is designed for use of NTSC demodulator.
When chrominance signal is fed to pin ② and pin ③ , color burst signal to pin ⑪ and Burst Gate Pulse (B.G.P.) to pin ⑬ , R-Y and B-Y color difference signals are obtained at output terminals pin ㉓ and pin ㉔
The demodulation axes of this demodulator are R-Y axis and B-Y axis. Variable capacitor CV1 is adjusted so that the phase angles between them are 90°.
Local oscillator (4.43 MHz) is formed by CW oscillator in IC1 connected to the terminal pin⑤, ⑥, ⑦, ⑧ and external circuit.
The variable capacitor CV2 is adjusted so that the free run frequency may be subcarrer frequency 4.433619 MHz.
Also APC (Automatic Phase Control) circuit is formed by APC section in IC1 connected to the terminal pin ⑨ and ⑩ local oscillator is controlled by APC circuit.
The color difference signals demodulated by this IC are fed to low pass filter, where high frequency component is removed, then R-Y and B-Y color difference signals are obtained.


㉔
㉓
㉒
㉑
⑳
⑲
⑱
⑰
⑯
⑮
⑭
⑬
B−Y DEMOD
COLOR CONTROL
ACC DET
ACC AMP
BAND PASS AMP BURST GATE
MATRIX
PAL SW
F F
KILLER AMP
IDENT AMP
R-Y DEMOD
CW OSC
PHASE CONTROL
IDENT KILLER DET
APC DET
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫

Block diagram of PAL demodulator

*Figure 1*

### 3-8-6. PAL-D Matrix and PAL S/D Switching Circuit

This circuit is further divided into circuits for the R-Y and B-Y signals, but the operation of both circuits is the same. So only the R-Y one will be explained.
R-Y signals input from the demodulator circuit are input to Q20 (BUFF) and Q21 (BUFF).
The signals input to Q21 are then input to pin ② of the analog switcher (IC5). When PAL S has been selected, between pins ② and ⑮ becomes conductive and the signals are supplied to the following circuit via Q33 (BUFF).
The signals input to Q20 are formed by IC7 and Q18.
Bias is controlled by a clamp circuit and is input to pin ⑮ of the 1H delay line (IC3). The DC level of the input is adjusted to the optimum value by using RV9.
IC3, driven by the 10.64 MHz clock signal generated by the clock generator circuit configured with XZ, Q34 and Q35, delays the input signal by 1H cycle and outputs it from pin ⑪ .
The high frequency component of the signal thus output is removed by the low-pass filter configured with Q22 and Q23, after which the signal is input to the following PAL-D matrix circuit.
The PAL-D matrix circuit is configured with R100, R101 and Q24.
The signal that was not delayed is input through R100 while the 1H delayed signal is input through R101 at a ratio of 1/2.
The PAL-D signal added to the base of Q24 is obtained from its emitter. The signal obtained from the Q24 emitter is input to pin ① of IC5. When PAL-D is selected, between pins ① and ⑮ becomes conductive and the signal is supplied to the following circuit via Q33 (BUFF).

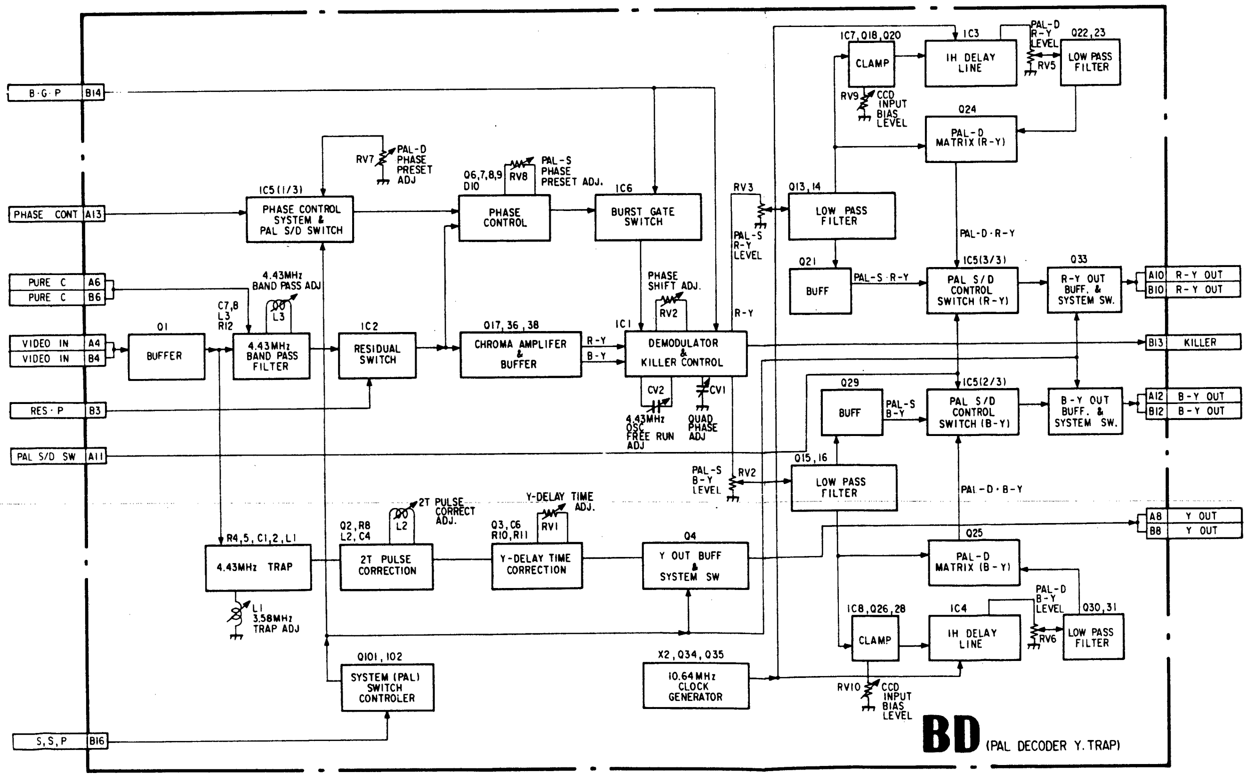
### 3-8-7. 4.43 MHz Trap Circuit, Phase Compensation, Y Delay Correction Circuit

The composite video signal from the emitter of transistor Q1 is fed to 4.43 MHz trap circuit composed of resistor R5, R6, R7, capacitor C1, C2 and inductor L1.
Adjustment of L1 is made so that the resonance frequency of this trap circuit should be subcarrier frequency.
Y (Luminance) signal removed subcarrier is obtained at output terminal of the trap circuit and is fed to the phase compensation circuit. (Transistor Q2, resistor R8, R9 R10, inductor L2 capacitor C4)
This circuit compensates phase delay of the signal at high frequency due to the trap circuit.
Y signal compensated phase delay is fed to Y-delay circuit. In this circuit Luminance/Chrominance time error is compensated by delay line.

### 3-8-8. Color Standard Selector

When PAL system is not selected by the COLOR STANDARD SELECTOR in the right side drawer, transistor Q101, Q102 are cut off and ±12V line power source is not supplied to the demodulator circuit.

### BLOCK DIAGRAM OF BD (PAL) BOARD


B·G·P B14
PHASE CONT A13
PURE C A6
PURE C B6
VIDEO IN A4
VIDEO IN B4
RES·P B3
PAL S/D SW A11
S,S,P B16
RV7 PAL-D PHASE PRESET ADJ
IC5(1/3)
PHASE CONTROL SYSTEM & PAL S/D SWITCH
Q6,7,8,9 D10
RV8 PAL-S PHASE PRESET ADJ.
PHASE CONTROL
IC6
BURST GATE SWITCH
4.43MHz BAND PASS ADJ
C7,8 L3 R12
L3
Q1
BUFFER
4.43MHz BAND PASS FILTER
IC2
RESIDUAL SWITCH
Q17, 36, 38
CHROMA AMPLIFER & BUFFER
R-Y
B-Y
IC1
PHASE SHIFT ADJ.
RV2
DEMODULATOR & KILLER CONTROL
CV2
CV1
4.43MHz OSC FREE RUN ADJ
QUAD PHASE ADJ
RV3
PAL-S R-Y LEVEL
PAL-S B-Y LEVEL
R4,5,C1,2,L1
4.43MHz TRAP
L1 3.58MHz TRAP ADJ
Q2,R8 L2,C4
L2
2T PULSE CORRECT ADJ.
2T PULSE CORRECTION
Q3,C6 R10,R11
RV1
Y-DELAY TIME ADJ.
Y-DELAY TIME CORRECTION
Q4
Y OUT BUFF & SYSTEM SW
Q101,102
SYSTEM (PAL) SWITCH CONTROLER
X2,Q34,Q35
10.64MHz CLOCK GENERATOR
IC7,Q18,Q20
CLAMP
IC3
1H DELAY LINE
RV9 CCD INPUT BIAS LEVEL
PAL-D R-Y LEVEL
RV5
Q22,23
LOW PASS FILTER
Q24
PAL-D MATRIX (R-Y)
Q13,14
LOW PASS FILTER
Q21
BUFF
PAL-S R-Y
PAL-D·R-Y
IC5(3/3)
PAL S/D CONTROL SWITCH (R-Y)
Q33
R-Y OUT BUFF. & SYSTEM SW.
A10 R-Y OUT
B10 R-Y OUT
B13 KILLER
Q29
BUFF
PAL-S B-Y
IC5(2/3)
PAL S/D CONTROL SWITCH (B-Y)
B-Y OUT BUFF. & SYSTEM SW.
A12 B-Y OUT
B12 B-Y OUT
Q15,16
LOW PASS FILTER
PAL-D·B-Y
A8 Y OUT
B8 Y OUT
Q25
PAL-D MATRIX (B-Y)
IC8,Q26,28
CLAMP
IC4
1H DELAY LINE
PAL-D B-Y LEVEL
RV6
Q30,31
LOW PASS FILTER
RV10 CCD INPUT BIAS LEVEL
BD (PAL DECODER Y.TRAP)

## 3-9. PAL-M DEMODULATOR, Y TRAP CIRCUIT (BM BOARD)

The composite video signal supplied from BA board is fed to transistor Q1 (buffer), then is supplied to the 3.58 MHz trap circuit with Y signal and to band pass filter with chrominance signal.

### 3-9-1. Chroma Band Pass Filter

The composite video signal obtained from at the emitter of transistor Q1 is fed to the Band pass filter composed of resistor R12, capacitor C7, C8, inductor L3 and transistor Q5.
The center frequency of this filter is adjusted to the subcarrier frequency (3.58 MHz) by L3, and chrominance signal is derivied from Q5.

### 3-9-2. Residual SW Circuit

The chrominance signal derivied at transistor Q5 is fed to analog switcher IC2.
When switch S1 on BJ board is set to ON position, residual pulse which has almost same phase as H sync is fed to control terminal of analog switcher (pin ③ of IC2) and screening is performed during H sync period.
When switch S1 on BJ board is set to OFF position, Low level signal (0V DC) is fed to control terminal and screening action is not performed. Thus residual switch circuit does not activate.
When there is residual subcarrier in the video signal, clamp level of color difference signal changes by turning switch S1 ON/OFF and therefore residual subcarrier can be checked on the picture as a color shift.

### 3-9-3. Chroma Amplifier Circuit

The chrominance signal from residual switch circuit (IC2 pin④) is fed to chroma amplifier circuit (Q19, Q36).
After the chroma signal is amplified by the inversion amplifier (gain: 1X), it is voltage divided by resistors R400 and R314 and then input to the R-Y input terminal (IC1, pin (3)) and B-Y input terminal (IC1, pin (2)) of the following demodulator circuit via the buffer (Q38).

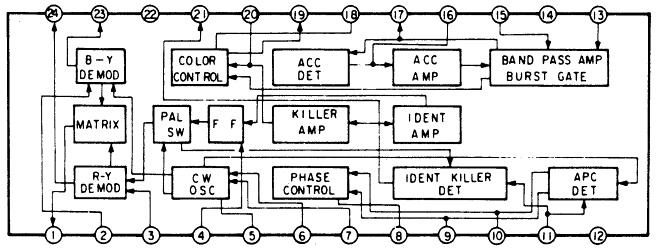
### 3-9-4. Phase Control Circuit

The chrominance signal from residual switch is also fed to phase control circuit (Q6, Q7, Q8, Q9, D12).
In this circuit, a variable capacitance diode (D10) is used to control the phase of color burst signal.
Anode voltage of D10 is applied by variable resistor RV8 and preset adjustment of phase is made by this variable resistor.
When the PHASE control on the right side of the front panel is turned, DC level of phase control signal (board terminal A13) changes and this phase control signal is fed to the cathode of D10 via analog switcher (IC5). In this way, Burst phase of chrominance signal is controlled according to the DC level of the phase control signal.
When PAL-D is selected with the PAL switch inside the right side drawer, between pins ③ and ④ of IC5 becomes conductive and phase control becomes dependent on RV7, disabling the Phase Control of the right side front panel.

Analog switcher IC5 (1/3) activates to make short-circuit between input terminal pin ③ or ⑤ and output terminal pin④, only when COLOR STANDARD SELECTOR in the right side of drawer is selected to PAL and otherwise pin ⑤ kept open circuit.
As above phase controlled chrominance signal is derived from collector of transistor Q9 and burst signal in this signal is gated by IC6. The gated burst signal is fed to the burst input terminal pin ⑪ of demodulator IC1.

### 3-9-5. PAL-M Demodulator

Block diagram of IC used for PAL demodulator is shown in Figure 1.
This IC is designed for use of NTSC demodulator.
When chrominance signal is fed to pin ② and pin ③, color burst signal to pin ⑪ and Burst Gate Pulse (B.G.P.) to pin ⑬, R-Y and B-Y color difference signals are obtained at output terminals pin ㉓ and pin ㉔
The demodulation axes of this demodulator are R-Y axis and B-Y axis. Variable capacitor CV1 is adjusted so that the phase angles between them are 90°.
Local oscillator (3.58 MHz) is formed by CW oscillator in IC1 connected to the terminal pin⑤, ⑥, ⑦, ⑧ and external circuit.
The variable capacitor CV2 is adjusted so that the free run frequency may be subcarrer frequency 3.575611 MHz.
Also APC (Automatic Phase Control) circuit is formed by APC section in IC1 connected to the terminal pin ⑨ and ⑩ local oscillator is controlled by APC circuit.
The color difference signals demodulated by this IC are fed to low pass filter, where high frequency component is removed, then R-Y and B-Y color difference signals are obtained.



㉔
㉓
㉒
㉑
⑳
⑲
⑱
⑰
⑯
⑮
⑭
⑬
B-Y DEMOD
COLOR CONTROL
ACC DET
ACC AMP
BAND PASS AMP BURST GATE
MATRIX
PAL SW
F F
KILLER AMP
IDENT AMP
R-Y DEMOD
CW OSC
PHASE CONTROL
IDENT KILLER DET
APC DET
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫

Block diagram of PAL-M demodulator

*Figure 1*

### 3-9-6. PAL-D Matrix and PAL S/D Switching Circuit

This circuit is further divided into circuits for the R-Y and B-Y signals, but the operation of both circuits is the same. So only the R-Y one will be explained.
R-Y signals input from the demodulator circuit are input to Q20 (BUFF) and Q21 (BUFF).
The signals input to Q21 are then input to pin ② of the analog switcher (IC5). When PAL S has been selected, between pins ② and ⑮ becomes conductive and the signals are supplied to the following circuit via Q33 (BUFF).
The signals input to Q20 are formed by IC7 and Q18.
Bias is controlled by a clamp circuit and is input to pin ⑮ of the 1H delay line (IC3). The DC level of the input is adjusted to the optimum value by using RV9.
IC3, driven by the 10.64 MHz clock signal generated by the clock generator circuit configured with XZ, Q34 and Q35, delays the input signal by 1H cycle and outputs it from pin ⑪.

The high frequency component of the signal thus output is removed by the low-pass filter configured with Q22 and Q23, after which the signal is input to the following PAL-D matrix circuit.
The PAL-D matrix circuit is configured with R100, R101 and Q24.
The signal that was not delayed is input through R100 while the 1H delayed signal is input through R101 at a ratio of 1/2.
The PAL-D signal added to the base of Q24 is obtained from its emitter. The signal obtained from the Q24 emitter is input to pin ① of IC5. When PAL-D is selected, between pins ① and ⑮ becomes conductive and the signal is supplied to the following circuit via Q33 (BUFF).

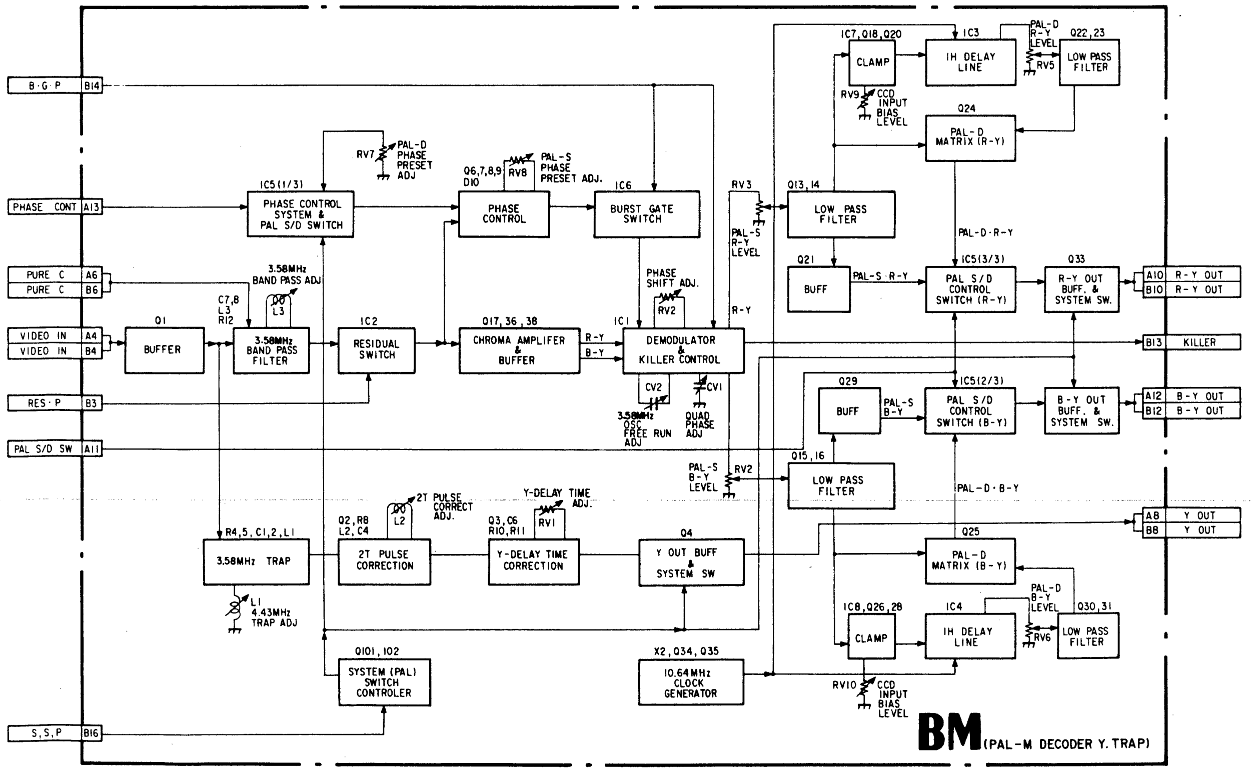
### 3-9-7. 3.58 MHz Trap Circuit, Phase Compensation, Y Delay Correction Circuit

The composite video signal from the emitter of transistor Q1 is fed to 3.58 MHz trap circuit composed of resistor R5, R6, R7, capacitor C1, C2 and inductor L1.
Adjustment of L1 is made so that the resonance frequency of this trap circuit should be subcarrier frequency.
Y (Luminance) signal removed subcarrier is obtained at output terminal of the trap circuit and is fed to the phase compensation circuit. (Transistor Q2, resistor R8, R9 R10, inductor L2 capacitor C4)
This circuit compensates phase delay of the signal at high frequency due to the trap circuit.
Y signal compensated phase delay is fed to Y-delay circuit. In this circuit Luminance/Chrominance time error is compensated by delay line.

### 3-9-8. Color Standard Selector

When PAL system is not selected by the COLOR STANDARD SELECTOR in the right side drawer, transistor Q101, Q102 are cut off and ±12V line power source is not supplied to the demodulator circuit.

## BLOCK DIAGRAM OF BM (PAL-M) BOARD



B·G·P B14
PHASE CONT A13
PURE C A6
PURE C B6
VIDEO IN A4
VIDEO IN B4
RES·P B3
PAL S/D SW A11
S,S,P B16
IC5(1/3)
PHASE CONTROL SYSTEM & PAL S/D SWITCH
RV7 PAL-D PHASE PRESET ADJ
Q6,7,8,9 D10
RV8 PAL-S PHASE PRESET ADJ.
PHASE CONTROL
IC6
BURST GATE SWITCH
RV3 PAL-S R-Y LEVEL
Q1
BUFFER
C7,8 L3 R12
3.58MHz BAND PASS ADJ
3.58MHz BAND PASS FILTER
IC2
RESIDUAL SWITCH
Q17, 36, 38
CHROMA AMPLIFER & BUFFER
R-Y
B-Y
IC1
DEMODULATOR & KILLER CONTROL
PHASE SHIFT ADJ. RV2
CV2 3.58MHz OSC FREE RUN ADJ
CV1 QUAD PHASE ADJ
PAL-S B-Y LEVEL RV2
R4,5, C1,2, L1
3.58MHz TRAP
L1 4.43MHz TRAP ADJ
Q2, R8 L2, C4
2T PULSE CORRECTION
L2 2T PULSE CORRECT ADJ.
Q3, C6 R10, R11
Y-DELAY TIME CORRECTION
RV1 Y-DELAY TIME ADJ.
Q4
Y OUT BUFF & SYSTEM SW
Q101, 102
SYSTEM (PAL) SWITCH CONTROLER
X2, Q34, Q35
10.64MHz CLOCK GENERATOR
IC7, Q18, Q20
CLAMP
RV9 CCD INPUT BIAS LEVEL
IC3
1H DELAY LINE
PAL-D R-Y LEVEL RV5
Q22, 23
LOW PASS FILTER
Q24
PAL-D MATRIX (R-Y)
Q13, 14
LOW PASS FILTER
Q21
BUFF
PAL-S·R-Y
PAL-D·R-Y
IC5(3/3)
PAL S/D CONTROL SWITCH (R-Y)
Q33
R-Y OUT BUFF. & SYSTEM SW.
A10 R-Y OUT
B10 R-Y OUT
B13 KILLER
Q29
BUFF
PAL-S B-Y
IC5(2/3)
PAL S/D CONTROL SWITCH (B-Y)
B-Y OUT BUFF. & SYSTEM SW.
A12 B-Y OUT
B12 B-Y OUT
Q15, 16
LOW PASS FILTER
PAL-D·B-Y
A8 Y OUT
B8 Y OUT
Q25
PAL-D MATRIX (B-Y)
IC8, Q26, 28
CLAMP
RV10 CCD INPUT BIAS LEVEL
IC4
1H DELAY LINE
PAL-D B-Y LEVEL RV6
Q30, 31
LOW PASS FILTER
BM (PAL-M DECODER Y. TRAP)

## 3-10. VERTICAL DEFLECTION OUTPUT CIRCUIT CONVERGENCE OUTPUT CIRCUIT (EB BOARD)

### 3-10-1. Vertical Deflection Output

Vertical Deflection Output amplifier is composed of DC coupled SEPP amplifier (Single Ended Push Pull) and boost up circuit. This boost up circuit contains transistors Q7 and Q8 to reduce power consumption by applying the voltage to the output transistor during vertical retrace time.
Both vertical rate saw tooth waveform and correction waveform for top and bottom pincushion are generated in DA board and fed to output amplifier. Vertical centering is performed by changing DC level of vertical rate sawtooth because Vertical DY (Deflection Yoke) is connected to output amplifier directly.

### 3-10-2. Convergence Yoke Output Circuit

CY (Convergence Yoke) is used for adjustment of misconvergence of vertical direction. This CY is driven by SEPP (single ended push pull) amplifier and connected directly. Correction waveform is provided from DB board.

### 3-10-3. HCT (Horizontal Convergence Transformer) Output Circuit

This circuit is used for adjustment of misconvergence for Horizontal direction.
HCT is also driven by SEPP amplifier and AC coupled to it.
Correction waveform is provided to the primary of HCT and transferred to the secondary windings, output voltage of secondary windings is applied to CV electrode of CRT (picture tube) and performed convergence adjustment.
circuit diagram shown in Figure 16 is the theory of basic HCT circuit.

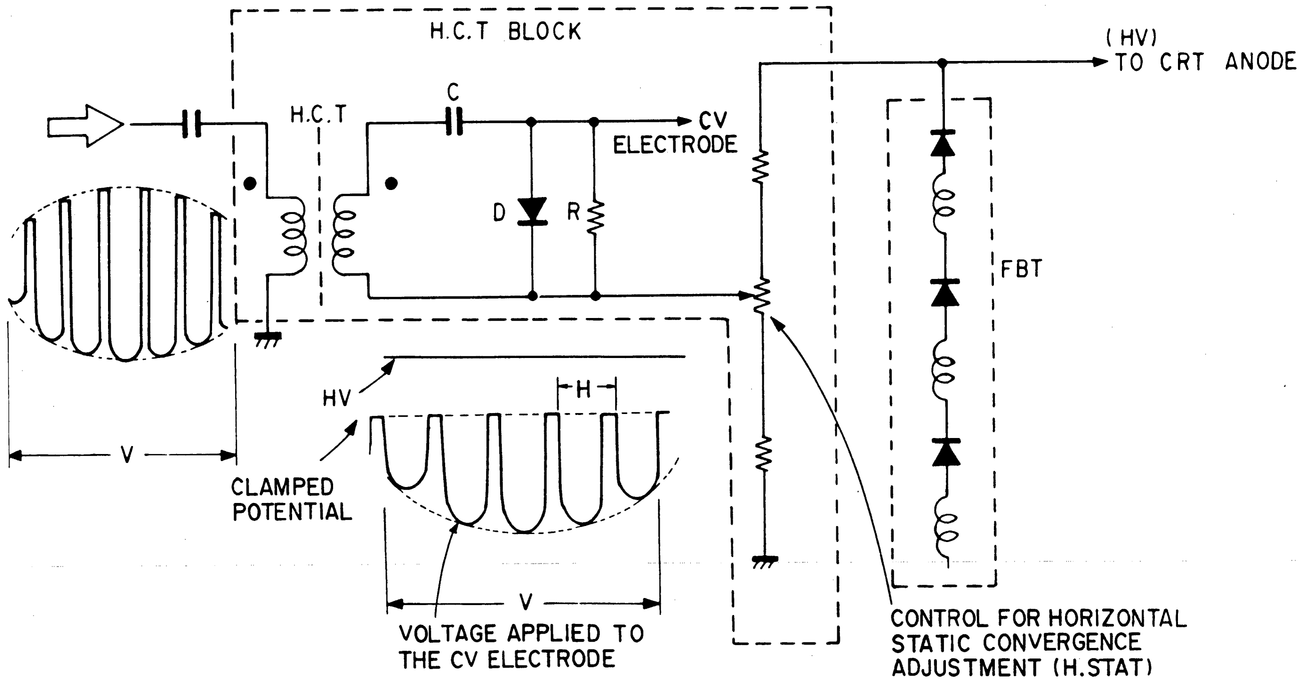
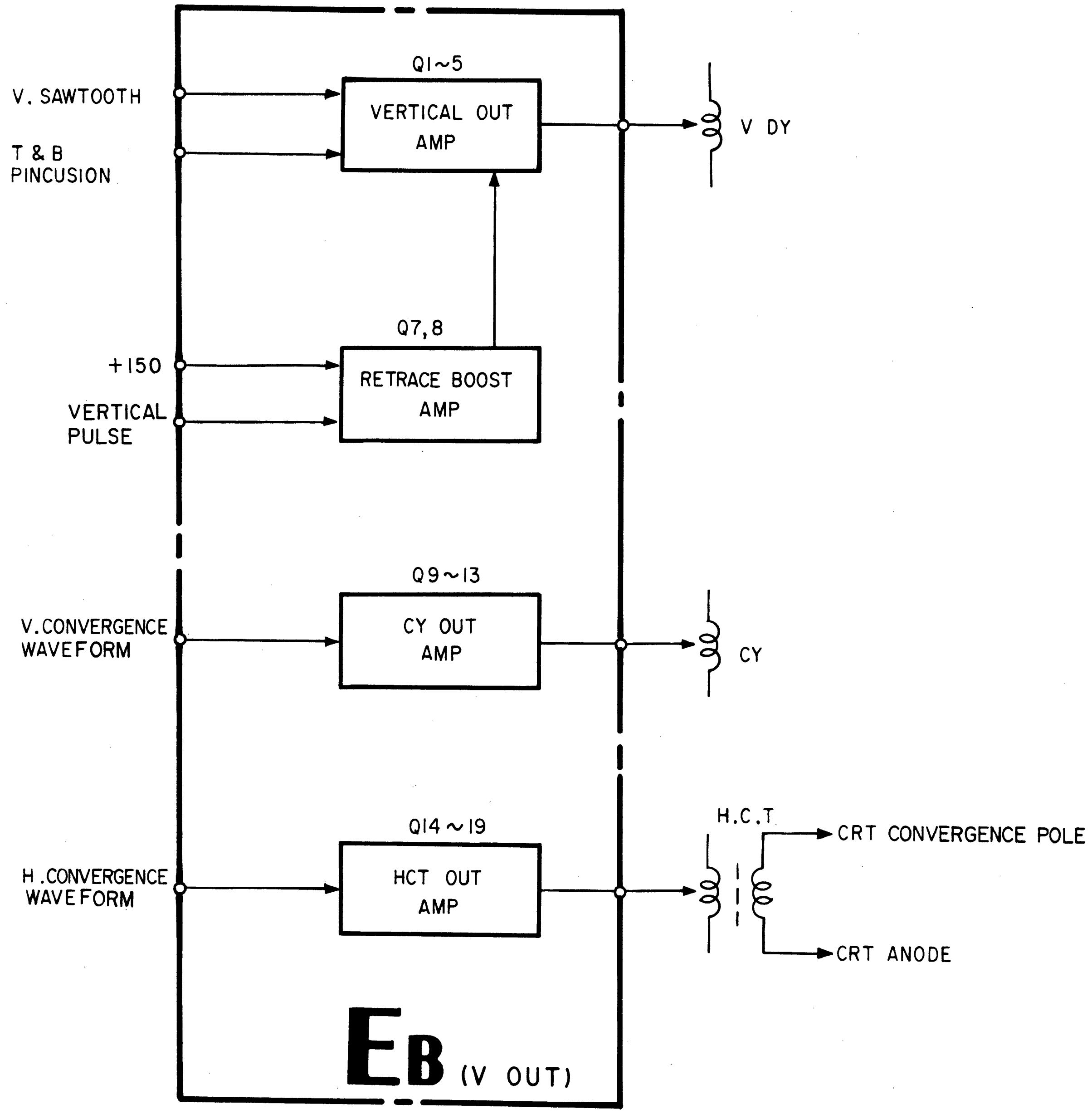

H.C.T BLOCK
H.C.T
C
CV
ELECTRODE
D
R
(HV)
TO CRT ANODE
FBT
V
HV
H
CLAMPED
POTENTIAL
V
VOLTAGE APPLIED TO
THE CV ELECTRODE
CONTROL FOR HORIZONTAL
STATIC CONVERGENCE
ADJUSTMENT (H.STAT)

*Figure 16*

**BLOCK DIAGRAM OF EB BOARD**


V. SAWTOOTH
T & B
PINCUSION
Q1~5
VERTICAL OUT
AMP
V DY
+150
VERTICAL
PULSE
Q7,8
RETRACE BOOST
AMP
Q9~13
V.CONVERGENCE
WAVEFORM
CY OUT
AMP
CY
Q14~19
H.CONVERGENCE
WAVEFORM
HCT OUT
AMP
H.C.T
CRT CONVERGENCE POLE
CRT ANODE
EB (V OUT)

## 3-11. POWER SUPPLY CIRCUIT (GA, GB BOARDS)

### 3-11-1. AC Power Supply, Rectifier Circuit

Voltage selector located at the rear side of the unit should be selected to the local line voltage (AC 100/120V or 220/240V).
In case of AC 100/120V selected by voltage selector, rectifier D21 capacitors C80 and C81 operate as a double multiple rectifier.
See Figure 17(a).
In case of AC 220/240V selected by voltage selector, rectifier D21 capacitors C80 and C81 operate as a full-wave rectifier.
See Figure 17(b).

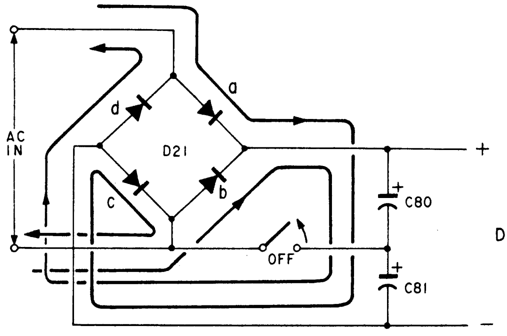
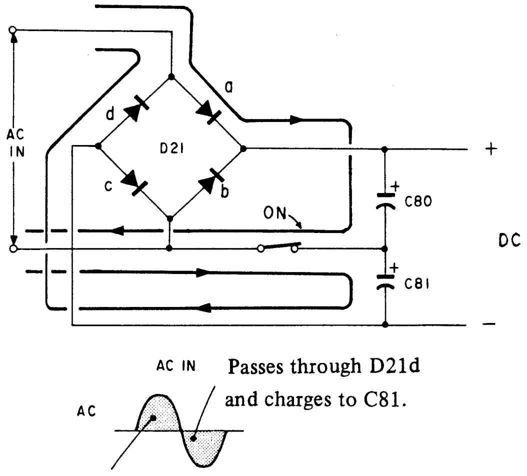

AC IN
D21
a
b
c
d
C80
C81
OFF
+
DC
–

*Figure 17(a)*


AC IN
D21
a
b
c
d
C80
C81
ON
+
DC
–
AC IN
AC

Passes through D21d and charges to C81.

Passes through D21a and charges to C80.

*Figure 17(b)*

### 3-11-2. Degauss Circuit

There are 2 posistors (PTH1, PTH2) in the degaussing circuit. One is used for AC 100/120V operation, the other is for AC 220/240V operation, these posistors are switched by voltage selector.
This degaussing circuit is turned ON and OFF by using Relay (RY1) automatically.
When power is turned ON, Automatic degaussing starts to work and a few seconds later stops automatically.
Also Manual degaussing is available if necessary after a few minutes power is turned on when posistor (PTH1 or PTH2) gets cool down. This manual degaussing is operated by a push of button (Degauss Switch) at the left of the front panel.
When degaussing circuit starts to work, Q11 transistor turns on by time constant circuit composed of resistors R88, 91 and capacitor C74. Q11 drives Q12 transistor. Relay (RY1) is driven by Q12. Time constant circuit keeps degaussing circuit to activate for several seconds until degaussing is finished.

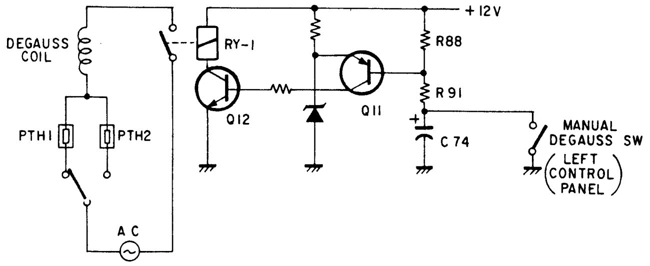

+12V
DEGAUSS COIL
RY-1
R88
R91
Q12
Q11
C74
PTH1
PTH2
AC
MANUAL DEGAUSS SW
(LEFT CONTROL PANEL)

*Figure 18*

### 3-11-3. Starter Circuit

Blocking oscillator composed of integrated circuit IC1 and transformer T4 operates when power is turned on. DC voltage obtained by diode D7 and capacitor C57 as a rectifier at the secondary circuit of T4 is supplied to IC2 and IC3, when AC voltage is higher than 50 ~ 70V (voltage selector at 100/120V position). Then power supply regulator starts to work and +15V line power supply is provided to IC2 and IC3 via diode D20, also voltage from T4 stops providing power supply to IC2 and IC3 because blocking oscillator is shut down by voltage generated at primary windings of SRT (Switching Regulator Transformer).

### 3-11-4. Switching Regulator Circuit

Block diagram is shown in Figure 19. This is half bridge type of switching regulator in this model.

**Following Description is the Theory of Half-Bridge Switching Regulator.**

DC voltage $E_{IN}$ rectified from AC voltage in AC power rectifier section is divided by capacitor C1 and C2. C1 and C2 have almost same value. Q1 (contains 2 transistors) operates as a switch driven by PWM modulated pulse via T2 (Drive Transformer). Switching current flows through primary windings of T1 (SRT) by switching transistor Q1 via T3 (Current Transformer).
Thus output voltages are generated at secondary windings of T1.

**Practical Circuit Used in this Model**

There are 2 switching regulators in this power supply. One is for low voltage power supply, ±15V, ±18V and +5V. The other is for high voltage ±150V power supply.
Low voltages are generated by IC2, T1, T2, T3 and Q2
High voltages are generated by IC3, T6, T7 and Q2
Refer to block diagram
Current Transformer T3 and T7 detects excess current in transistor Q1 and Q2 for the protection of damage.

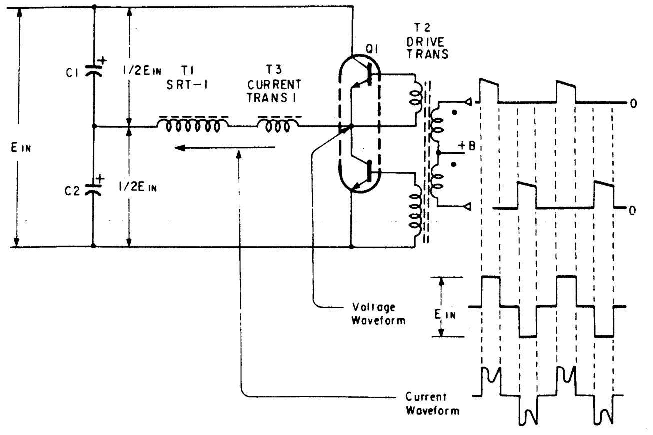
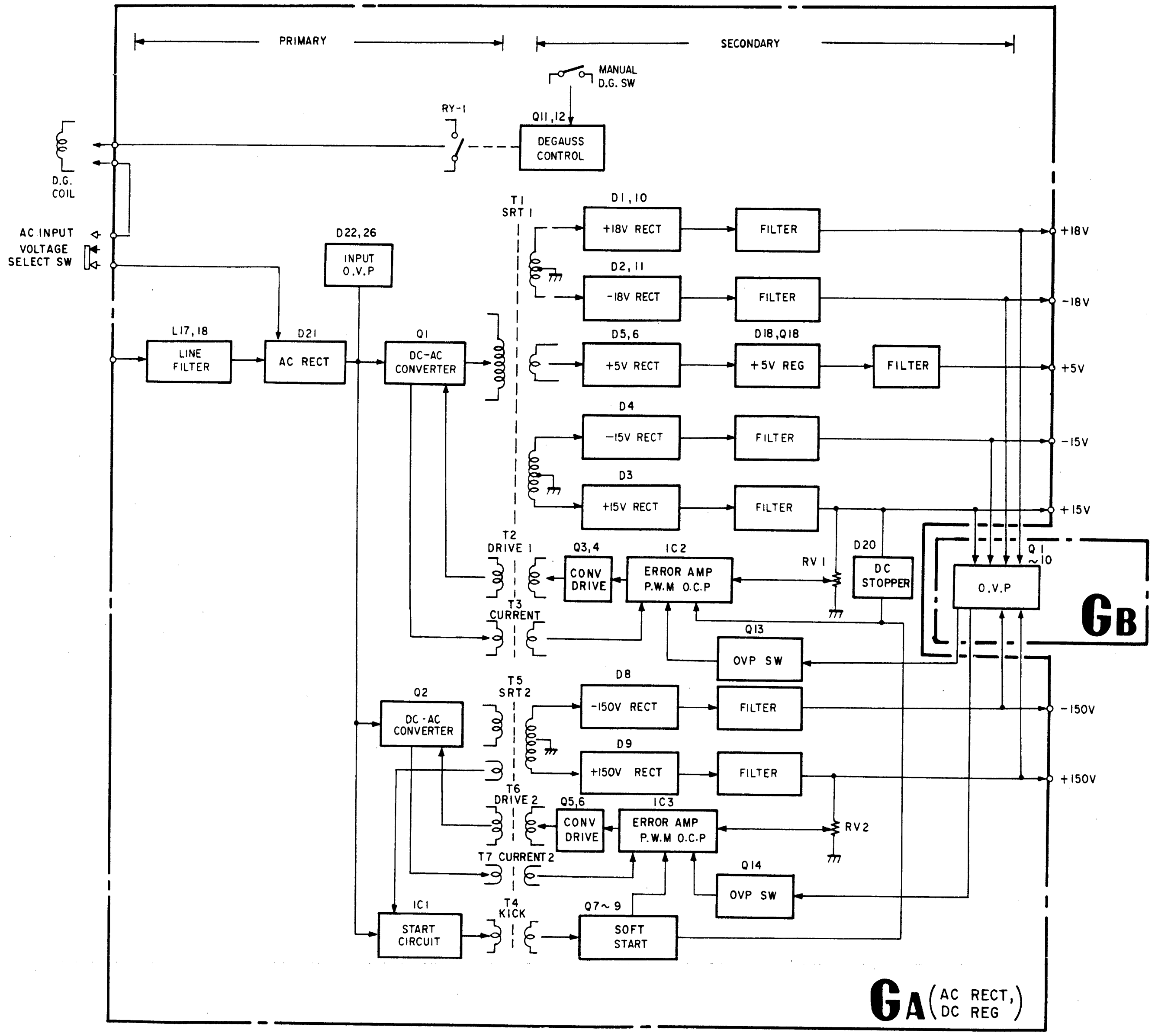

C1
C2
$E_{IN}$
1/2$E_{IN}$
1/2$E_{IN}$
T1 SRT-1
T3 CURRENT TRANS 1
Q1
T2 DRIVE TRANS
+B
0
0
Voltage Waveform
$E_{IN}$
Current Waveform

*Figure 19*

### 3-11-5. Over Voltage Protector

Daughter board GB is mounted in mother board GA.
GB board works for over voltage protection.
When output voltage gets higher value than predetermined value, over voltage protector activates to prevent damage of unit.

## BLOCK DIAGRAM OF GA, GB BOARD


PRIMARY
SECONDARY
MANUAL D.G. SW
RY-1
Q11,12
DEGAUSS CONTROL
D.G. COIL
AC INPUT
VOLTAGE SELECT SW
D22,26
INPUT O.V.P
L17,18
LINE FILTER
D21
AC RECT
Q1
DC-AC CONVERTER
T1 SRT 1
D1,10
+18V RECT
FILTER
+18V
D2,11
-18V RECT
FILTER
-18V
D5,6
+5V RECT
D18,Q18
+5V REG
FILTER
+5V
D4
-15V RECT
FILTER
-15V
D3
+15V RECT
FILTER
+15V
T2 DRIVE 1
Q3,4
CONV DRIVE
IC2
ERROR AMP P.W.M O.C.P
RV1
D20
DC STOPPER
Q1~10
O.V.P
GB
T3 CURRENT
Q13
OVP SW
Q2
DC-AC CONVERTER
T5 SRT2
D8
-150V RECT
FILTER
-150V
D9
+150V RECT
FILTER
+150V
T6 DRIVE 2
Q5,6
CONV DRIVE
IC3
ERROR AMP P.W.M O.C.P
RV2
T7 CURRENT 2
Q14
OVP SW
IC1
START CIRCUIT
T4 KICK
Q7~9
SOFT START
GA (AC RECT, DC REG)

## 3-12. CONVERGENCE CIRCUIT (DB, EB BOARD, HCT BLOCK)

### 3-12-1. General Description

This is a simple explanation of the convergence system in Super fine Trinitron picture tube used in this model.
The Deflection Yoke (DY) used in this model generates an almost uniform magnetic field in order to get fine beam spot size. Accordingly basically misconvergence of horizontal direction as shown in Figure 20 is generated on the picture screen.

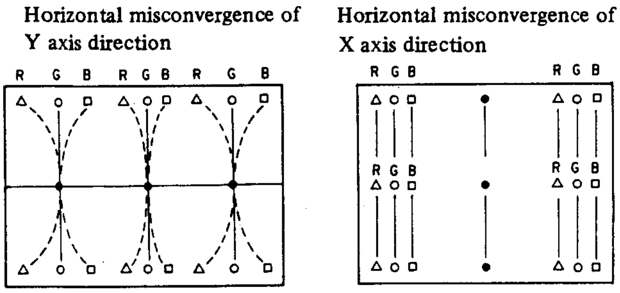

Horizontal misconvergence of Y axis direction
Horizontal misconvergence of X axis direction

*Figure 20*

### 3-12-2. Static Electrorical Convergence System

Trinitron system has a unique static convergence system.
The structure of electric gun is shown in Figure 21.
G6 is the electrode for convergence. Static electrorical convergence control can be used. In this system beam spot deterioration is less than that of the electromagnetic system.

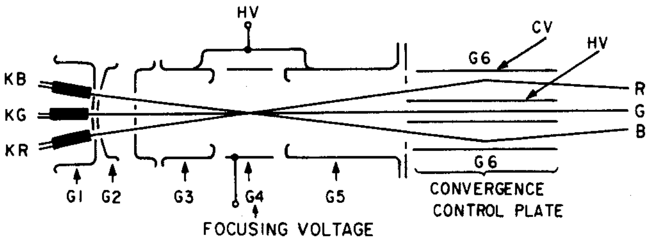
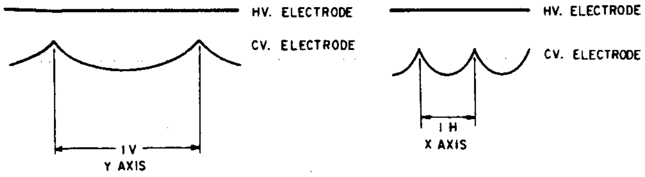


*Figure 21*

### 3-12-3. Convergence Correction Circuit (Horizontal Convergence)

Misconvergence of horizontal direction on Y axis is corrected by applying vertical rate parabola waveform to the convergence plate (G6)
And misconvergence of horizontal direction is corrected by applying horizontal rate parabola waveform to G6.
See Figure 22.



HORIZONTAL MISCONVERGENCE

*Figure 22*

In this model, transformer is used to supply correction voltage to the G6 electrode for the horizontal direction misconvergence. In the secondary of the transformer peak clamp circuit using diode is applied so that both the vertical rate parabola waveform and horizontal rate parabola waveform are mixed and supplied to CV electrode. See Figure 23.

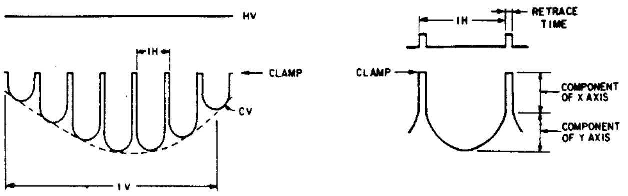


*Figure 23*

The correction waveforms are generated in DB board and output amplifier is located in EB board.

### 3-12-4. Vertical Convergence

Theoretically there is no misconvergence of Vertical direction since electric gun is aligned in line. But there is a slight amount of misconvergence due to the variations of CRT and DY and also due to the terrestial magnetism.
There are also 2 kinds of misconvergence of vertical direction on X axis and Y axis as same as hoirzontal direction.
Misconvergence of Vertical direction on X axis is corrected by CY (convergence yoke).
Figure 24 shows the CRT neck as seen from the rear side.
Red beam and Blue beam are moved to the vertical direction differentially by CY. As Green beam is at the center of the CRT neck, it is not affected by the magnetic field of CY due to the cancellation of the magnetic field at the center of the neck.
Misconvergence of vertical direction on Y axis is corrected by NTC (Neck Twist Coil).
A Neck Twist Coil is wound around the center of electrode G2 ~ G3 (See Figure 24) for the correction. Theortically, as the RED and Blue beams have HI component (They are opposite direction) as seen in Figure 24, they move to the vertical direction due to the magnetic field generated by NTC.
However as magnetic field of the NTC is the parallel to the Green beam, Green beam is not affected.
Correction waveform generator is located in DB board, output amplifier of CY is in EB board and output amplifier of NTC is in DB board.

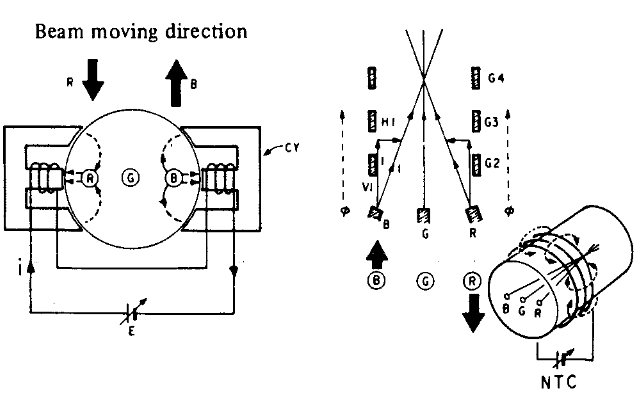
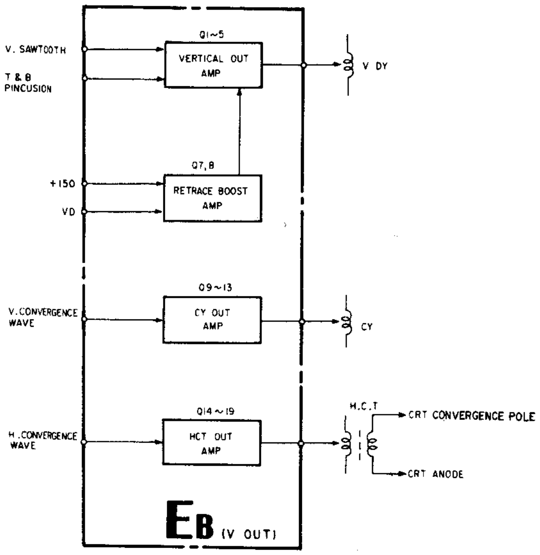
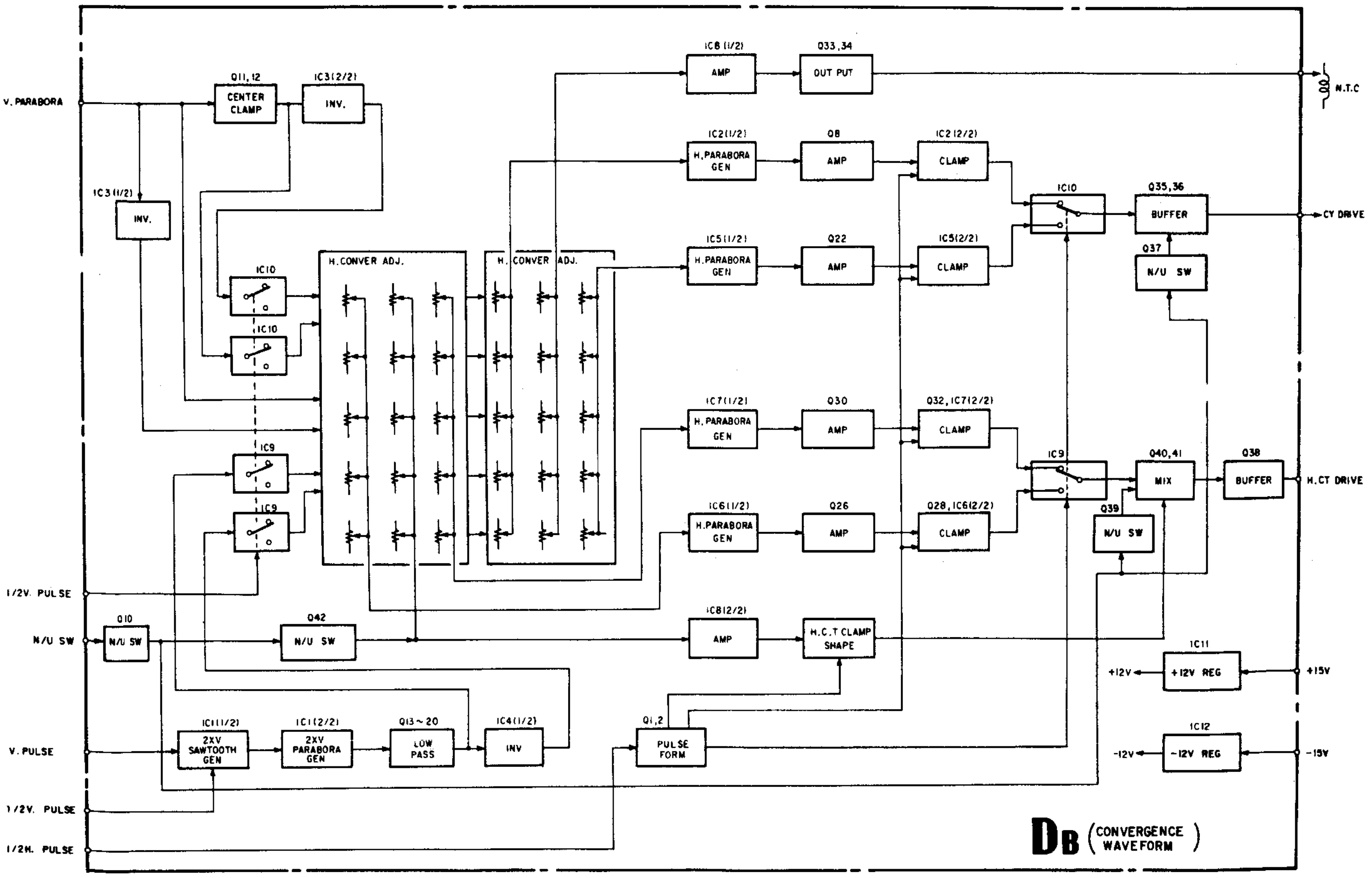


*Figure 24*

## BLOCK DIAGRAM OF EB BOARD


V. SAWTOOTH
T & B PINCUSION
Q1~5
VERTICAL OUT AMP
V DY
+150
VD
Q7, 8
RETRACE BOOST AMP
V. CONVERGENCE WAVE
Q9~13
CY OUT AMP
CY
H. CONVERGENCE WAVE
Q14~19
HCT OUT AMP
H.C.T
CRT CONVERGENCE POLE
CRT ANODE
EB (V OUT)

## BLOCK DIAGRAM OF DB BOARD


V. PARABORA
Q11, 12
CENTER CLAMP
IC3(2/2)
INV.
IC3(1/2)
INV.
IC10
IC9
H. CONVER ADJ.
H. CONVER ADJ.
IC8 (1/2)
AMP
Q33, 34
OUT PUT
N.T.C
IC2(1/2)
H. PARABORA GEN
Q8
AMP
IC2(2/2)
CLAMP
IC5(1/2)
H. PARABORA GEN
Q22
AMP
IC5(2/2)
CLAMP
Q35, 36
BUFFER
CY DRIVE
Q37
N/U SW
IC7(1/2)
H. PARABORA GEN
Q30
AMP
Q32, IC7(2/2)
CLAMP
Q40, 41
MIX
Q38
BUFFER
H. CT DRIVE
IC6(1/2)
H. PARABORA GEN
Q26
AMP
Q28, IC6(2/2)
CLAMP
Q39
N/U SW
1/2V. PULSE
N/U SW
Q10
N/U SW
Q42
N/U SW
IC8(2/2)
AMP
H.C.T CLAMP SHAPE
IC11
+12V
+12V REG
+15V
V. PULSE
IC1(1/2)
2XV SAWTOOTH GEN
IC1(2/2)
2XV PARABORA GEN
Q13~20
LOW PASS
IC4(1/2)
INV
Q1, 2
PULSE FORM
IC12
-12V
-12V REG
-15V
1/2V. PULSE
1/2H. PULSE
DB (CONVERGENCE WAVEFORM)

### 3-12-5. Convergence Correction Waveform Generator (DB BOARD)

This monitor incorporates unique convergence circuit which can adjust convergence at 15 positions of the picture screen, each 15 potentiomers for horizontal and vertical convergence adjustments are located on the left side of the drawer corresponding to the picture screen.

### 3-12-6. Horizontal Convergence Correction Waveform Generator

A vertical rate parabola waveform is supplied to the DB board from the DB board and is inverted and switched to make correction waveform.
For the left side of the picture screen, the correction waveform is compounded by adjusting potentiometers RV16 ~ RV20. This waveform is converted to horizontal rate parabola waveform which level is proportional to the compounded waveform by H parabola generator (IC6, Q25). This is amplified by transistor Q26 and clamped at the center position of the horizontal period by transistor Q28 and IC6. See Figure 25.

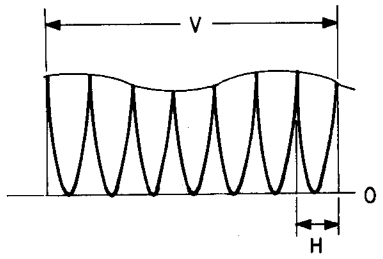


Figure 25

For the right side of the picture screen, the correction waveform is generated by adjusting potentiometers RV26 ~ RV30 as same as the left side of the picture.
These correction waveforms (left and right side) are switched and mixed by analog switcher which activates at 1/2H period as seen in Figure 26.

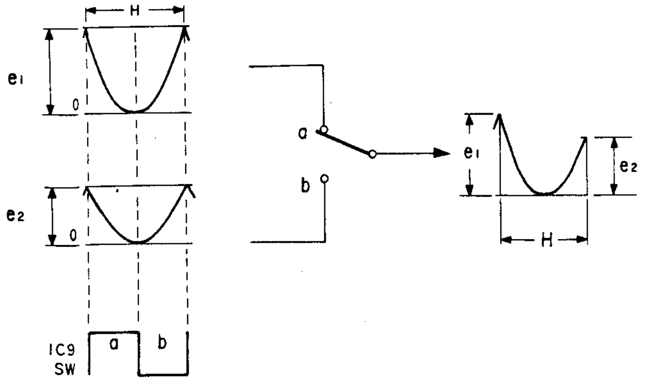

H
e1
0
e2
0
IC9
SW
a
b
a
b
e1
e2
H

Figure 26

As a result, right side adjustments and left side adjustment can be performed independently of each other.
For the center of the picture screen, vertical parabola waveform is compounded to the correction waveform by adjusting potentiometers RV21 ~ 25, and converted to horizontal pulse. This means amplitude of horizontal pulse is modulated by vertical parobola. This modulated pulse is mixed with horizontal parabola for left and right side correction. This mixed waveform is amplified and supplied to convergence plate in CRT via HCT. Thus horizontal convergence is corrected. See Figure 27.

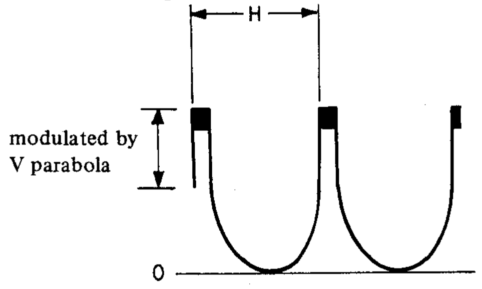

H
modulated by
V parabola
0

Figure 27

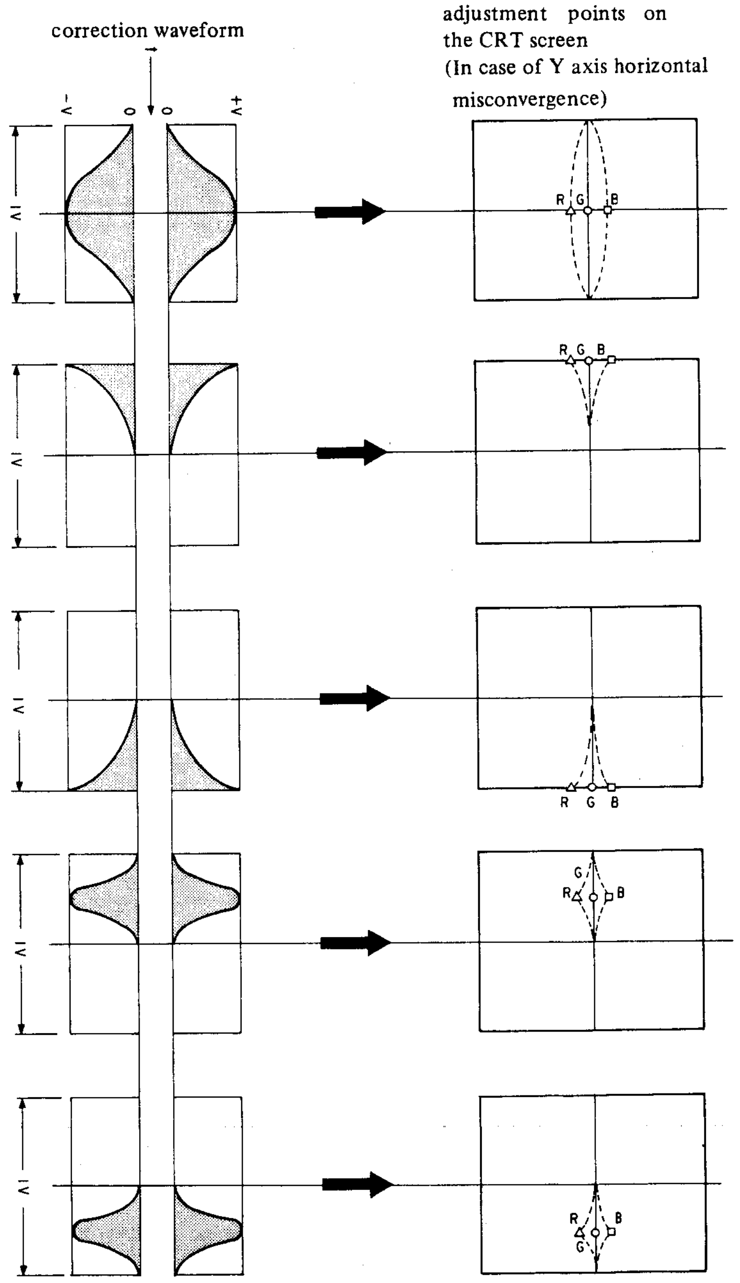

correction waveform
adjustment points on
the CRT screen
(In case of Y axis horizontal
misconvergence)
-V
0
0
+V
1V
R G B
R G B
R G B
G
R B
R B
G

Figure 28

### 3-12-7. Vertical Convergence Correction Waveform Generator

For the left and right side of the picture, correction circuit for vertical convergence is same as horizontal correction circuit of left and right side of the picture. The correction waveform is amplified in EB board and supplied to CY.
For the center of picture screen, correction waveform is fed to amplifier (IC8 (1/2), Q33 Q34) and supplied to NTC (Neck twist Coil).
This vertical convergence is performed.

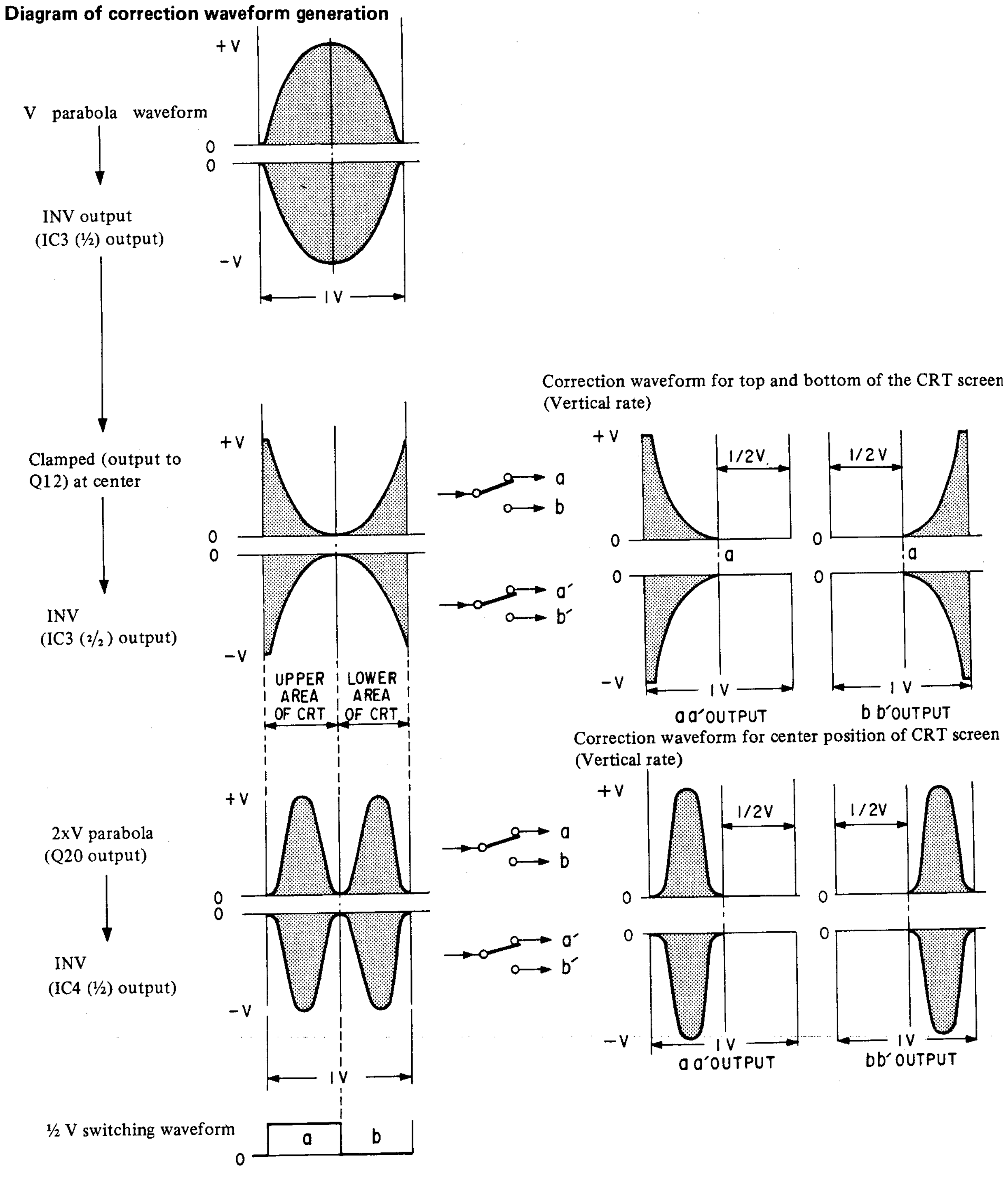


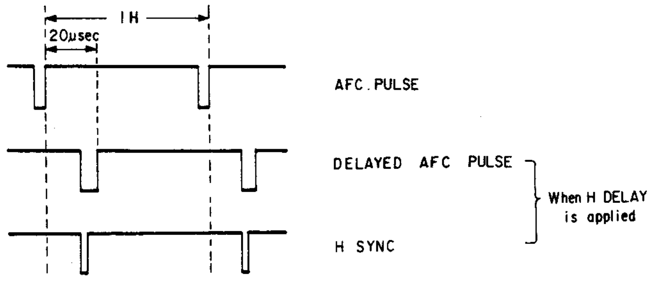
Diagram of correction waveform generation
+V
V parabola waveform
0
0
INV output
(IC3 (½) output)
-V
1V
Clamped (output to
Q12) at center
+V
0
0
INV
(IC3 (²/₂) output)
-V
UPPER AREA OF CRT
LOWER AREA OF CRT
a
b
a'
b'
2xV parabola
(Q20 output)
+V
0
0
INV
(IC4 (½) output)
-V
1V
a
b
a'
b'
½ V switching waveform
0
a
b
Correction waveform for top and bottom of the CRT screen
(Vertical rate)
+V
1/2V
1/2V
0
0
a
a
0
0
-V
1V
1V
a a'OUTPUT
b b'OUTPUT
Correction waveform for center position of CRT screen
(Vertical rate)
+V
1/2V
1/2V
0
0
0
0
-V
1V
1V
a a'OUTPUT
bb' OUTPUT

Figure 29

## 3-13. DEFLECTION CIRCUIT (DA BOARD)

### 3-13-1. H Delay and Horizontal AFC (Automatic Frequency Control) Circuit

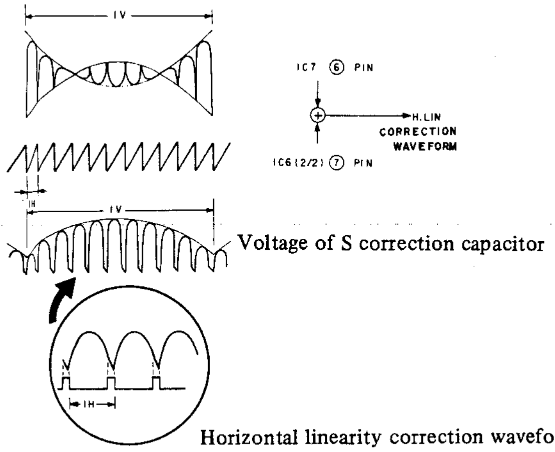
In this model H delay function is performed by delaying H. AFC pulse in the horizontal AFC circuit. (See Figure 30)
H. AFC pulse which is fed from H.O.T. (Horizontal Output transformer) is wave shaped and is delayed about 20 μs by IC1 (2/2).
This delayed pulse is integrated by inductor L1, and capacitor C14, thus saw tooth waveform is obtained and fed to terminal pin ④ of IC4. AFC detection is performed by IC4, Output of AFC detector is fed to control terminal of horizontal oscillator (H.OSC) via low pass filter composed of capacitor C12, C15 and resistor R10.
3 types of AFC mode are selected by changing low pass filter which determines AFC time constant.
AFC time constant circuit is composed of switch S1, resistor R13, R14, R15 and capacitor C17, C18.



Pulse at H delay operation *Figure 30*

### 3-13-2. Horizontal Linearity Correction Circuit

In this model Horizontal Linearity correction is made by applying correction voltage to the Horizontal deflection circuit.
Basically, Linearity correction is made by modulating power source of horizontal output circuit with horizontal saw tooth voltage.
Also So-called "Inside pincushion" correction is performed by applying correction waveform to S correction capacitor.
This correction waveform is generated by balanced modulator (IC7) with vertical rate parabola waveform. See Figure 31.
Horizontal sawtooth waveform is generated by IC5 (1/2) for horizontal linearity correction. Horizontal rate parabola waveform is generated by integration of saw tooth by IC6 (1/2). This parabola waveform is performed balanced modulation by IC7 with vertical rate parabola waveform, horizontal saw tooth and parabola waveform are fed to horizontal linearity output amplifier in EA board.
Correction of horizontal linearity correction and inside pincushion correction are performed.



Voltage of S correction capacitor

Horizontal linearity correction waveform

*Figure 31*

### 3-13-3. Horizontal Blanking Pulse Generator

Horizontal rate sawtooth waveform generated in H. Linearity circuit is fed to the comparator IC8 (!/†). In this circuit, 1/2H delayed pulse is obtained. This pulse is fed to integrator IC9 (1/2) and 1/2H delayed sawtooth waveform is obtained and this is fed to the comparator IC10 (1/2).
Thus the comparator generates horizontal pulse to make H. Blanking pulse wich starts just before the starting edge of the retrace time. Also width of horizontal blanking pulse is determined by JK-FF IC1 (1/2).

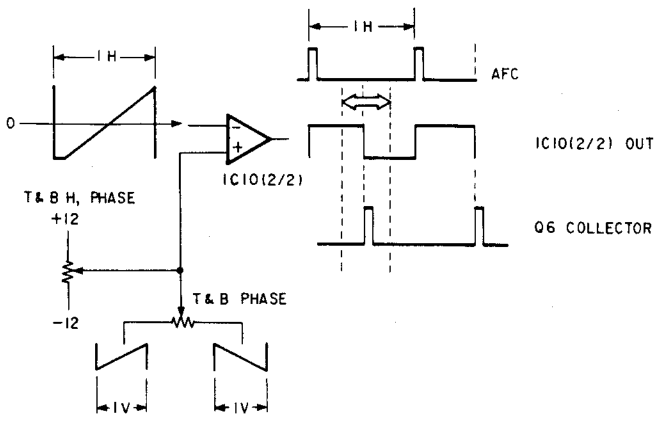


*Figure 32*

### 3-13-4. Top & Bottom Pincushion Circuit

Horizontal rate sawtooth waveform generated in H Linearity circuit is also fed IC10. IC10 generates advanced H pulse for the phase correction because vertical Deflection Yoke works as an integrator at horizontal rate, and deflection current for Top & Bottom pincushion correction is delayed about 1/2H for this reson. See Figure 32.
Advanced H pulse is fed to IC11 (1/2) and advanced horizontal sawtooth waveform is generated. It is integrated by IC11 (2/2) and horizontal rate parabola waveform is obtained.
Modulated butterfly waveform for Top & Bottom pincushion correction is obtained by Balanced modulator IC2. In this balanced modulator, horizontal rate parabola waveform is used as a carrier and vertical rate sawtooth waveform is modulated by this carrier. See Figure 33.
This correction waveform is fed to vertical deflection output amplifier in EB board.

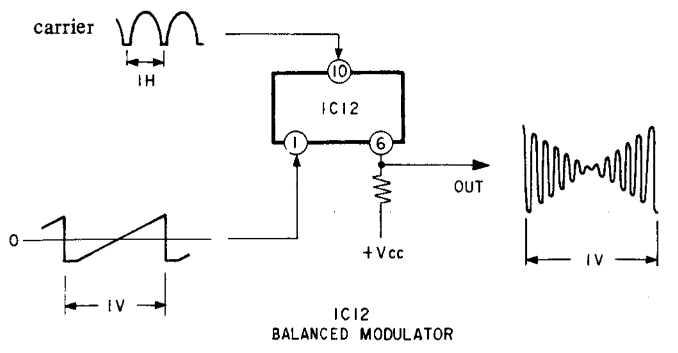


*Figure 33*

### 3-13-5. Automatic 50/60Hz Field Selection Circuit

This model has an automatic vertical field frequency selection circuit so that color systems with different frequencies such as NTSC or PAL and SECAM can be received. IC18 is automatic field frequency detecting device and its output switches time constant of integrator in vertical deflection circuit.

### 3-13-6. Scan Mode Selection Circuit

There are 3 modes of scanning in this model: NORMAL SCAN/ UNDER SCAN/SET UP SCAN.
There are level adjustments for H1 width, V, height side pincushion and top & bottom pincushion.
Levels of correction waveforms are switched so that these adjustments are made independently for each scanning mode. IC14, IC15 and IC16 activates for this purpose.

### 3-13-7. Vertical Deflection, Side Pincushion Correction

IC19 (1/2) generates vertical rate sawtooth waveform for vertical deflection. V sawtooth waveform is generated by the integrator IC9 (1/2) which is reset by V sync.
Also vertical rate parabola is generated by integrating V. sawtooth waveform by IC9 (2/2).
This V parabola is used for side pincushion correction, and also V. parabola is converted to sine waveform by IC20 (1/2) and is mixed with V parabola waveform. This mixed waveform is used for side pincushion correction and fed to side pincushion output amplifier in EA board.
Vertical drive voltage for vertical deflection is generated by mixing vertical rate sawtooth waveform generated by IC19 (1/2) and sime waveform generated by IC22 (1/2).
This drive waveform is fed to vertical deflection output amplifier.
Balance adjustment of vertical linearity correction can be performed by IC22 (1/2) and vertical centering can be adjusted by IC22 (2/2).

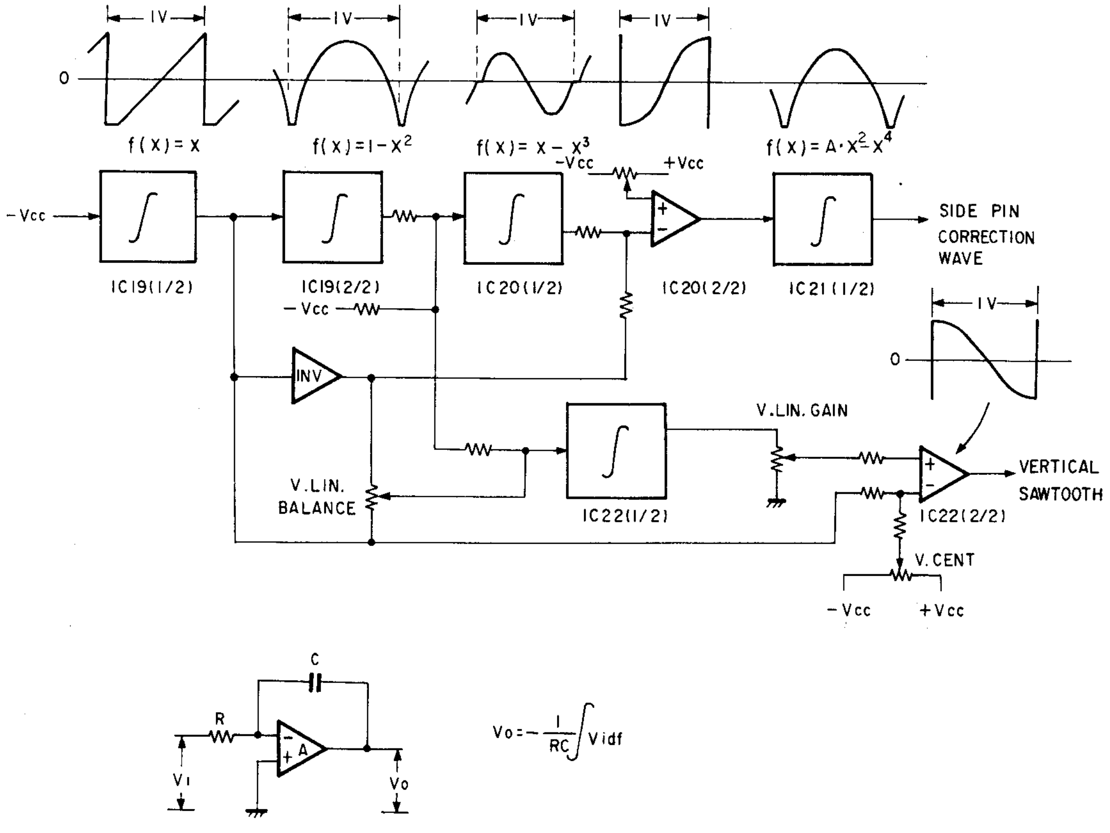
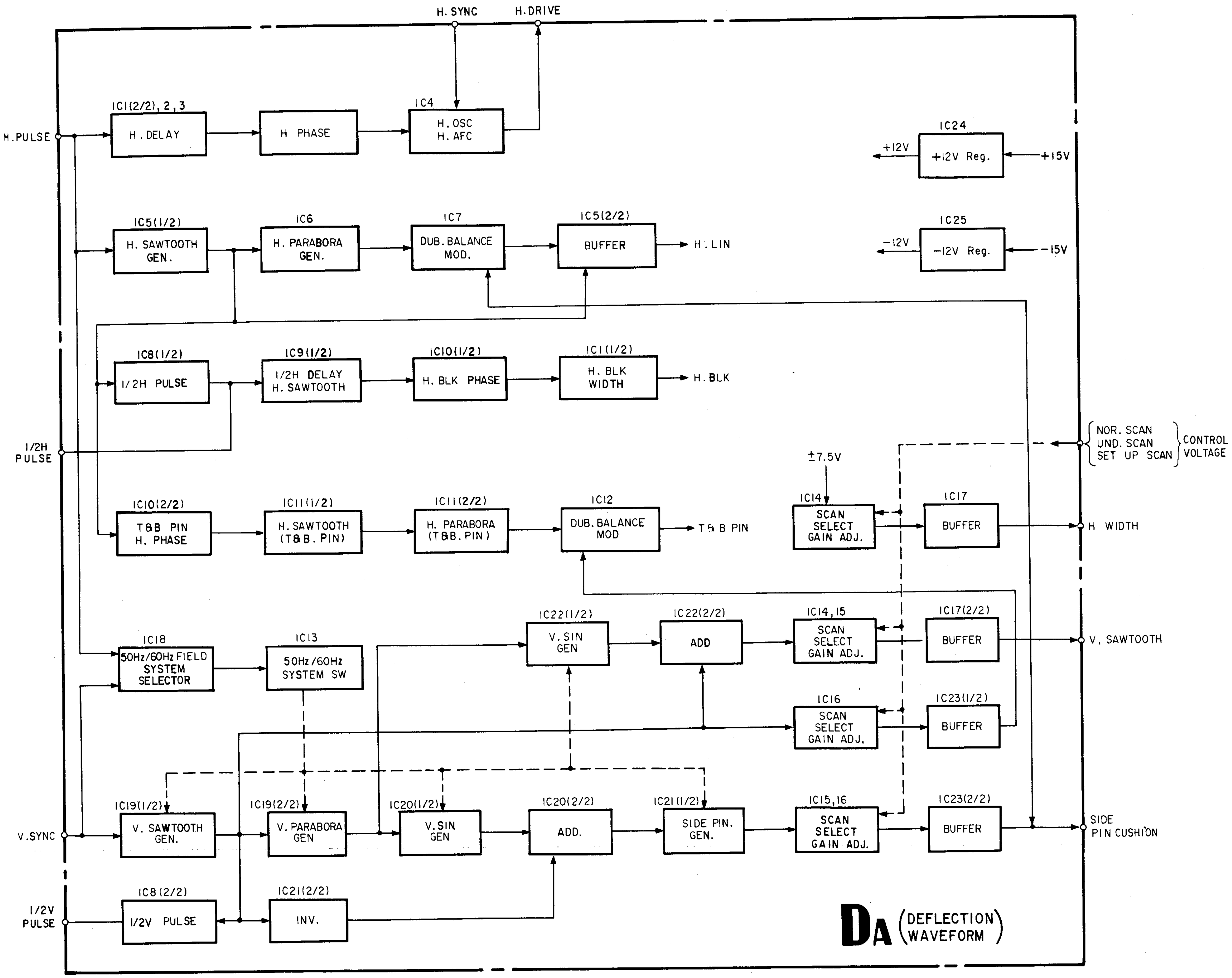


*Figure 34*

**BLOCK DIAGRAM OF DA BOARD**


H. SYNC
H. DRIVE
H. PULSE
IC1(2/2), 2, 3
H. DELAY
H PHASE
IC4
H. OSC
H. AFC
IC24
+12V
+12V Reg.
+15V
IC5(1/2)
H. SAWTOOTH GEN.
IC6
H. PARABORA GEN.
IC7
DUB. BALANCE MOD.
IC5(2/2)
BUFFER
H. LIN
IC25
−12V
−12V Reg.
−15V
IC8(1/2)
1/2H PULSE
IC9(1/2)
1/2H DELAY
H. SAWTOOTH
IC10(1/2)
H. BLK PHASE
IC1(1/2)
H. BLK WIDTH
H. BLK
1/2H PULSE
NOR. SCAN
UND. SCAN
SET UP SCAN
CONTROL VOLTAGE
±7.5V
IC10(2/2)
T&B PIN
H. PHASE
IC11(1/2)
H. SAWTOOTH
(T&B. PIN)
IC11(2/2)
H. PARABORA
(T&B. PIN)
IC12
DUB. BALANCE MOD
T & B PIN
IC14
SCAN SELECT GAIN ADJ.
IC17
BUFFER
H WIDTH
IC22(1/2)
V. SIN GEN
IC22(2/2)
ADD
IC14, 15
SCAN SELECT GAIN ADJ.
IC17(2/2)
BUFFER
V. SAWTOOTH
IC18
50Hz/60Hz FIELD SYSTEM SELECTOR
IC13
50Hz/60Hz SYSTEM SW
IC16
SCAN SELECT GAIN ADJ.
IC23(1/2)
BUFFER
V. SYNC
IC19(1/2)
V. SAWTOOTH GEN.
IC19(2/2)
V. PARABORA GEN
IC20(1/2)
V. SIN GEN
IC20(2/2)
ADD.
IC21(1/2)
SIDE PIN. GEN.
IC15, 16
SCAN SELECT GAIN ADJ.
IC23(2/2)
BUFFER
SIDE PIN CUSHION
1/2V PULSE
IC8(2/2)
1/2V PULSE
IC21(2/2)
INV.
DA (DEFLECTION WAVEFORM)

## 3-14. HORIZONTAL OUTPUT (EA BOARD)

### 3-14-1. Horizontal Deflection Circuit

Horizontal drive pulse for Horizontal deflection output is made at DA board and is fed to T4 (Horizontal Drive Transformer) via Q13 (H. driver). T4 is driven by Q13 and output pulse of T4 drives Q14 (Horizontal Output Transistor).

To obtain high efficiency in this model, DC-DC converter is used for side pincushion correction, Horizontal Width adjustment and +B Line voltage conversion to the horizontal deflection circuit.

This converted Line voltage is fed to horizontal deflection output circuit via H.O.T (Horizontal Output Transformer). Side pincushion correction and H. width adjustment are made by this DC-DC converter. IC-1 contains error amplifier and PWM (Pulse Width Modulator) circuit for DC-DC converter. Side pincushion correction waveform and DC voltage for H. Width adjustment are made in DA board and supplied to error amplifier to control DC-DC converter.

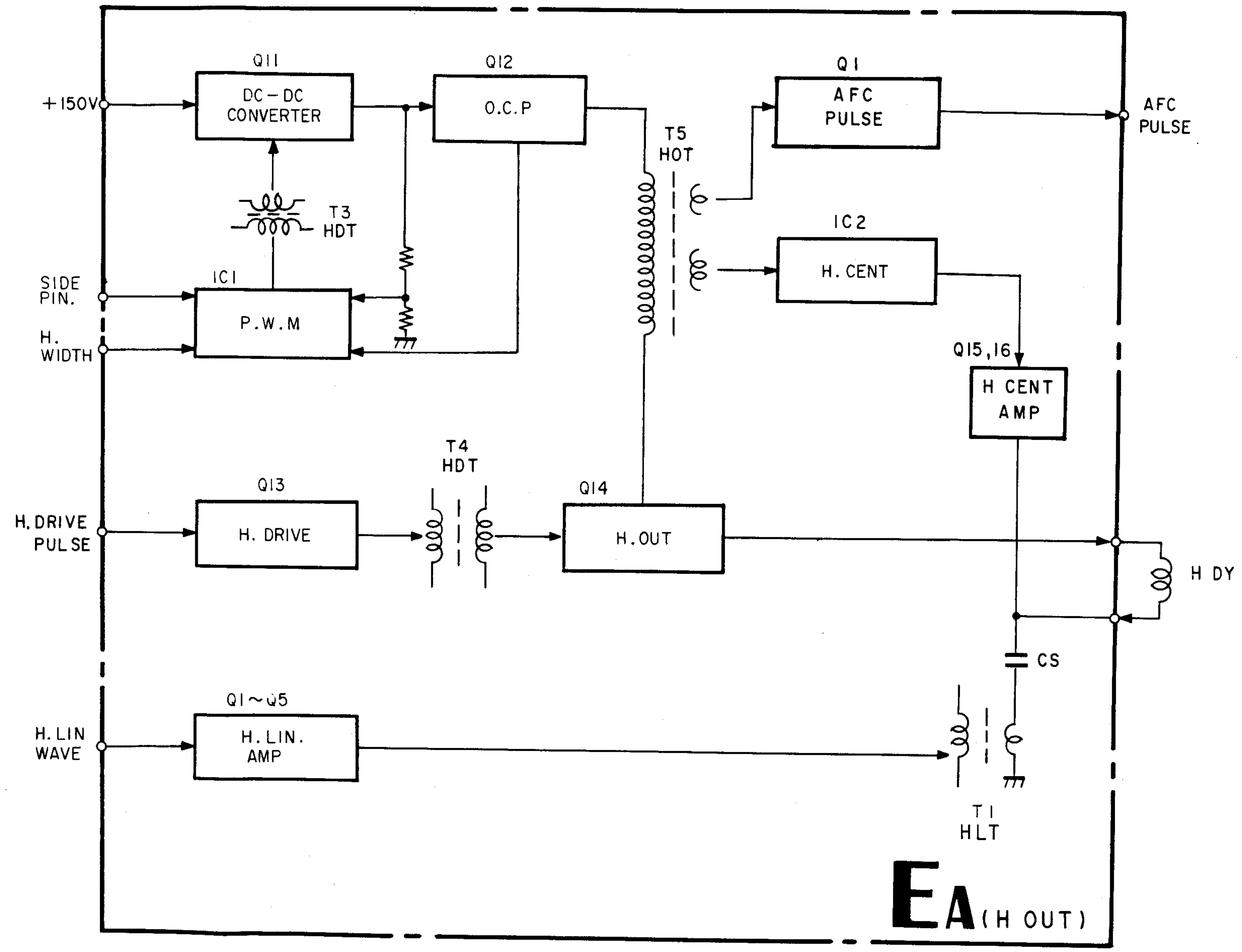
### 3-14-2. Horizontal Centering Circuit

± low voltages power supply for H centering are made in this circuit from output of secondary windings of T5 (Horizontal Output Transformer). These low voltages are converted to current source for mixing DC current on the deflection current. In this circuit Bow shaped geometry distortion due to the H centering adjustment is adjusted by providing vertical rate parabola waveform current on the H centering current.

### 3-14-3. Horizontal Linearity Correction Circuit

Waveform for Horizontal Linearity correction made in DA board is fed to SEPP amplifier (Single Ended Push Pull) which are composed of Q1 - Q5 transistors. Output of this amplifier is fed to H deflection circuit (Deflection Yoke) and make correction of H linearity by T1 (Horizontal Linearity Transformer).

BLOCK DIAGRAM OF EA BOARD



## 3-15. HIGH VOLTAGE REGULATOR (PA BOARD)

This high voltage regulator uses also DC-DC converter so as to reduce power consumption.
The theory of operation of this circuit is as follows.

### 3-15-1. Detection of High Voltage

High Voltage applied to the CRT anode is converted to the low voltage by HCT block (Horizontal Convergence Transformer). This low voltage is fed to buffer amplifier IC-4(2/2) and compared with external reference voltage in IC-1. The HCT contains resistor-network and transformer for convergence adjustment. This resistor-network works as a voltage divider.

### 3-15-2. PWM Modulator

IC-1 works as error amplifier and PWM modulator comparing voltage between high voltage and the reference voltage is amplified and modulated so as to drive Q-102 output transistor. Output signal from IC-1, which is modulated in PWM, is fed to Q-102 via drive transformer. +B line supplied to FBT (Fly Back Transformer) circuit is controlled by switching Q-102 output transistor on/off.

### 3-15-3. Output Circuit

When high voltage drops down, output voltage of HCT also drops as above mentioned. At this time PWM circuit is designed so that the ON period of Q-102 output transistor should be longer than high voltage drops down. +B line, switched ON/OFF by Q-102, is supplied to converter circuit which drives FBT via LOT (Line Output Transformer).

Amount of collector current of Q-103, which drives FBT, depends upon ON period of Q-102 because PWM modulator is triggered by H. pulse. Therefore when ON period of Q-102 is longer, collector current of Q-103 increases and energy stored in capacitor C124 increases, causing potential of C124 to rise. (Refer to Figure 36) When output transistor Q-103 goes off, flyback pulse is generated by resonance between capacitor C108 and inductance obtained by parallel connection of FBT and LOT. This flyback pulse is transferred to the secondary circuit of FBT. Therefore high voltage is generated.

### 3-15-4. High Voltage Adjustment

High voltage is adjustable by controlling the input level of error amplifier.

### 3-15-5. High Voltage Protection Circuit

High voltage protector activates to shut down high voltage, when high voltage exceeds the predetermined value so as to prevent Xray radiation.

The high voltage converted to the low voltage is detected at the terminal of HCT block. This detected voltage is fed to the ⊕ input terminal of comparator IC-2(2/2) via low pass filter, which is composed of resistor R245 and capacitor C216. When this voltage exceeds the reference voltage, the voltage of ⊖ input terminal of comparator IC-2(2/2), output level of this comparator goes high level and turns SCR (D206) gate on to shut down the drive pulse of flyback generator. Thus high voltage stops.

The reference voltage of the comparator IC-2(2/2) is made by mixing stabilized voltage (zener diode D215) and the voltage at terminal 9 of FBT. So the reference voltage goes down, when beam current of CRT increases. Therefore as beam current increases, shut-down voltage of high voltage decreases.

### 3-15-6. Protection Circuit for Excess Beam Current

Beam current which flows in secondary windings of FBT is measured at the terminal 9 of FBT. This beam current is converted to the voltage by resistor R1 (R3) and R2 (R4) located in PB board in series connection of secondary windings of FBT. This converted voltage is fed to ⊖input of comparator IC-2(1/2) or IC-3(1/2). As beam current increases, ⊖input voltage goes down. When beam current increases until ⊖input voltage goes below the reference voltage ( ⊕ input terminal voltage) output voltage of comparator goes up high level and SCR (D205 or D206) turns ON. Thus drive pulse of flyback generator is shut down. Therefore high voltage stops.

### 3-15-7. CRT Protection Circuit

When vertical deflection stops, this circuit activates to shut down high voltage to prevent damage of CRT.
When vertical deflection stops, there is no vertical output pulse generated at vertical output amplifier. So Q201 transistor is cut off and output of comparator IC-4(1/2) goes up high level. Q202 transistor turns on and flyback generator stops.

### 3-15-8. G2 Voltage Regulator

Flyback pulse generated at Q103 (H output transistor) is rectified to obtain DC voltage. This rectified DC voltage is regulated by Q104, IC-3(1/2) and Q106 transistor. Regulated 410V DC voltage is obtained. Q105 transistor which works in accordance with G2 control circuit in BI board supplied proper voltage to G2 of CRT.

### 3-15-9. Power Supply for Heater

Power supply to heater is generated from secondary windings of LOT. Heater voltage is adjusted by resistor R107.

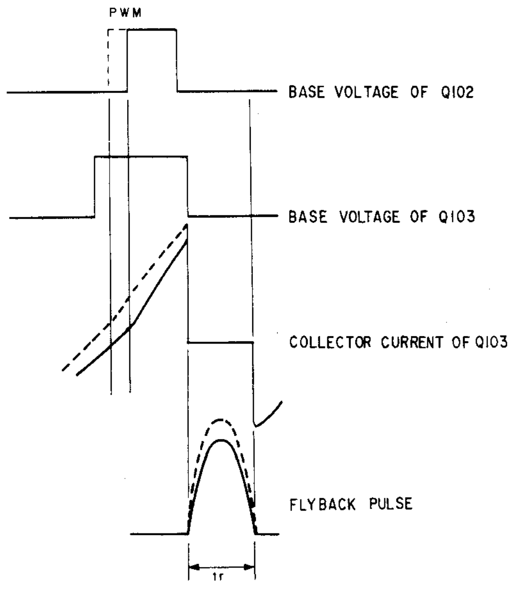


*Figure 35*

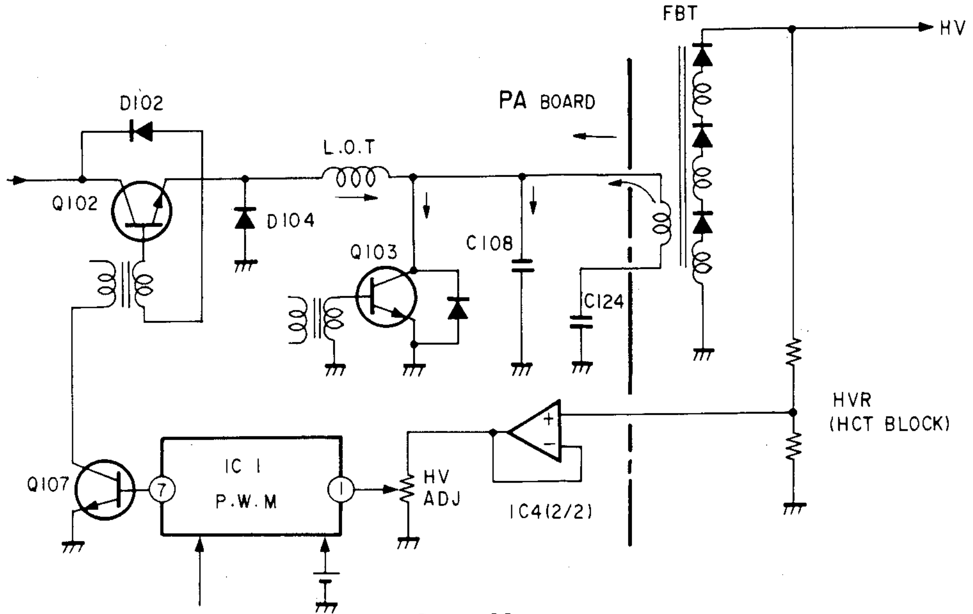
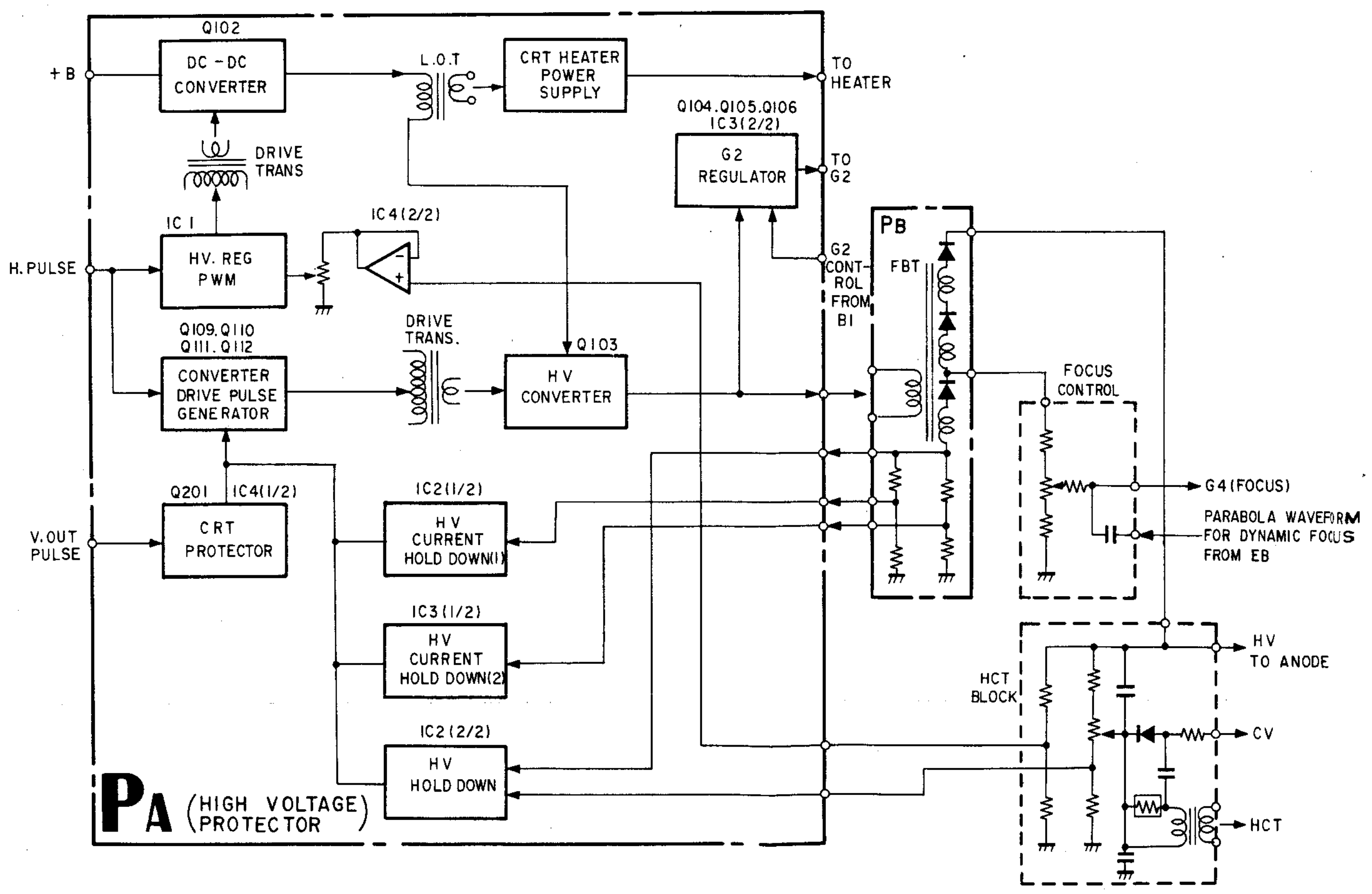

FBT
HV
PA BOARD
D102
L.O.T
Q102
D104
Q103
C108
C124
HVR
(HCT BLOCK)
Q107
IC 1
P.W.M
7
1
HV
ADJ
IC4(2/2)
H. PULSE

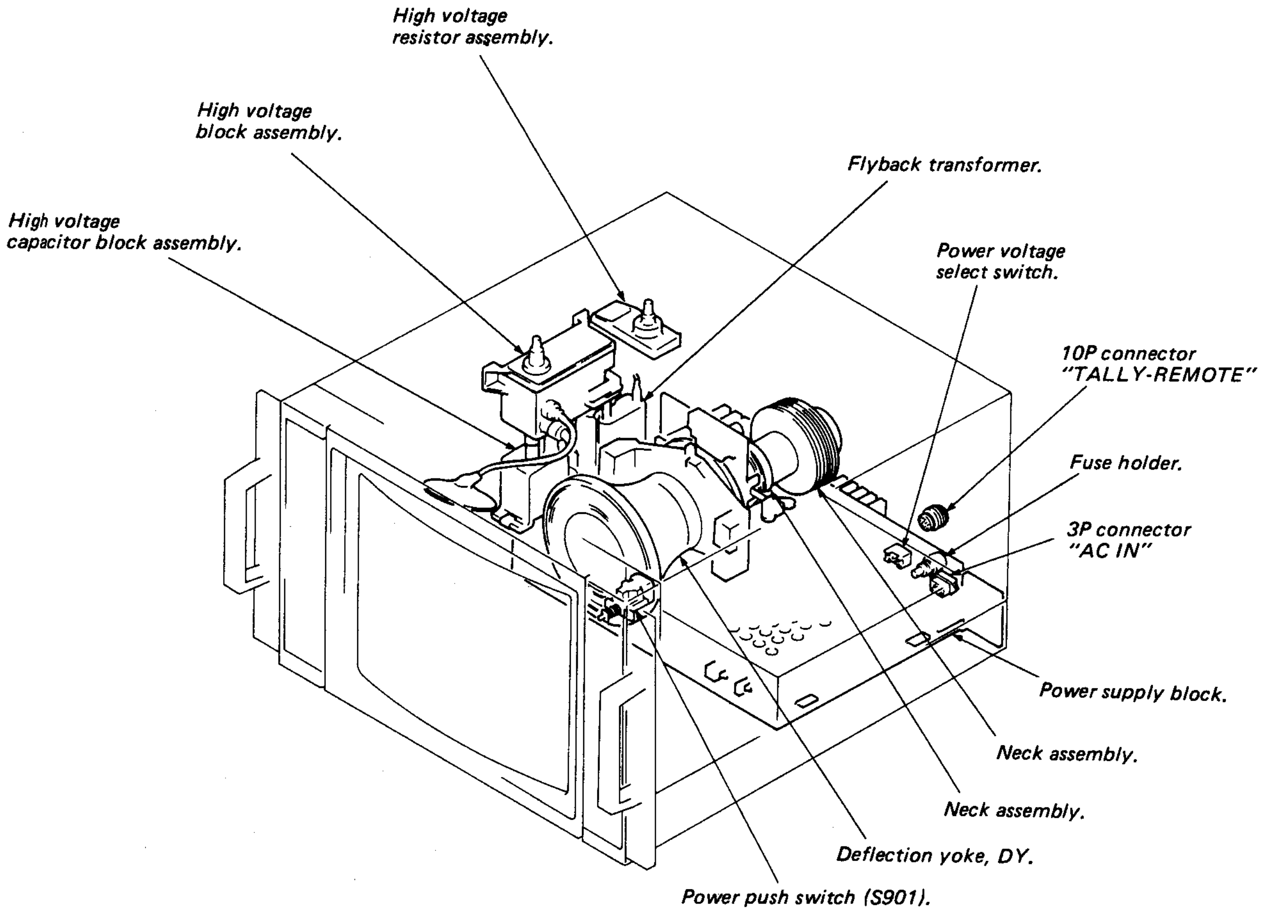
*Figure 36*

## BLOCK DIAGRAM OF PA BOARD

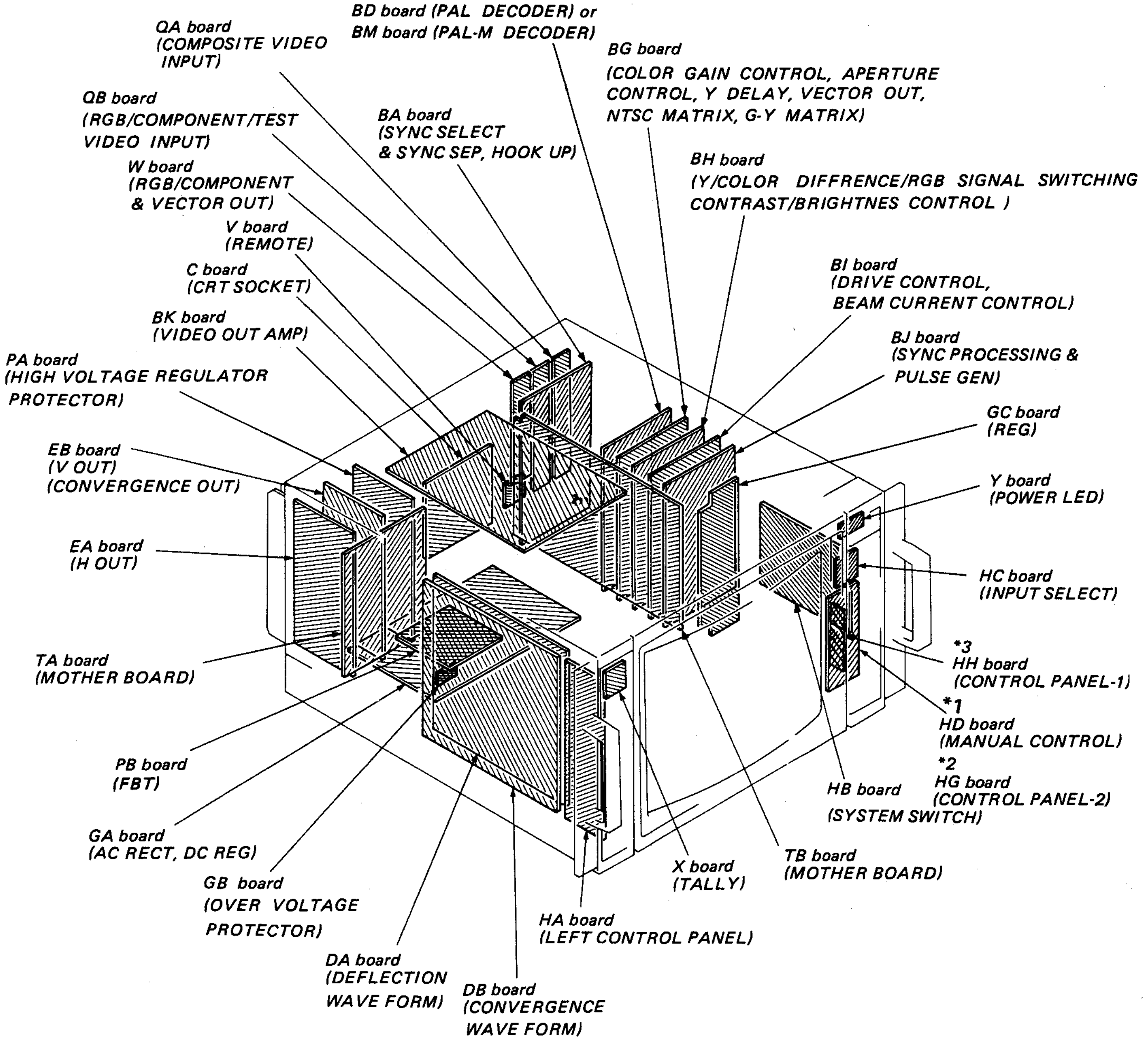

Q102
DC - DC
CONVERTER
+B
L.O.T
CRT HEATER
POWER
SUPPLY
TO
HEATER
DRIVE
TRANS
Q104.Q105.Q106
IC3(2/2)
G2
REGULATOR
TO
G2
IC 1
HV. REG
PWM
IC4(2/2)
H. PULSE
PB
FBT
G2
CONT-
ROL
FROM
BI
Q109.Q110
Q111.Q112
CONVERTER
DRIVE PULSE
GENERATOR
DRIVE
TRANS.
Q103
HV
CONVERTER
FOCUS
CONTROL
G4(FOCUS)
PARABOLA WAVEFORM
FOR DYNAMIC FOCUS
FROM EB
Q201
IC4(1/2)
V.OUT
PULSE
CRT
PROTECTOR
IC2(1/2)
HV
CURRENT
HOLD DOWN(1)
IC3(1/2)
HV
CURRENT
HOLD DOWN(2)
HCT
BLOCK
HV
TO ANODE
CV
IC2(2/2)
HV
HOLD DOWN
HCT
PA
(HIGH VOLTAGE
PROTECTOR)

# SECTION 4
# ADJUSTMENTS

## 4-1. INTERNAL VIEW


High voltage resistor assembly.
High voltage block assembly.
Flyback transformer.
High voltage capacitor block assembly.
Power voltage select switch.
10P connector "TALLY-REMOTE"
Fuse holder.
3P connector "AC IN"
Power supply block.
Neck assembly.
Neck assembly.
Deflection yoke, DY.
Power push switch (S901).

## 4-2. CIRCUIT BOARDS LOCATION


QA board (COMPOSITE VIDEO INPUT)
BD board (PAL DECODER) or BM board (PAL-M DECODER)
BG board (COLOR GAIN CONTROL, APERTURE CONTROL, Y DELAY, VECTOR OUT, NTSC MATRIX, G-Y MATRIX)
QB board (RGB/COMPONENT/TEST VIDEO INPUT)
BA board (SYNC SELECT & SYNC SEP, HOOK UP)
W board (RGB/COMPONENT & VECTOR OUT)
BH board (Y/COLOR DIFFRENCE/RGB SIGNAL SWITCHING CONTRAST/BRIGHTNES CONTROL )
V board (REMOTE)
C board (CRT SOCKET)
BI board (DRIVE CONTROL, BEAM CURRENT CONTROL)
BK board (VIDEO OUT AMP)
BJ board (SYNC PROCESSING & PULSE GEN)
PA board (HIGH VOLTAGE REGULATOR PROTECTOR)
GC board (REG)
EB board (V OUT) (CONVERGENCE OUT)
Y board (POWER LED)
EA board (H OUT)
HC board (INPUT SELECT)
*3 HH board (CONTROL PANEL-1)
TA board (MOTHER BOARD)
*1 HD board (MANUAL CONTROL)
*2 HG board (CONTROL PANEL-2)
PB board (FBT)
HB board (SYSTEM SWITCH)
GA board (AC RECT, DC REG)
X board (TALLY)
TB board (MOTHER BOARD)
GB board (OVER VOLTAGE PROTECTOR)
HA board (LEFT CONTROL PANEL)
DA board (DEFLECTION WAVE FORM)
DB board (CONVERGENCE WAVE FORM)

***1**

**HD board**

**BVM-1410P ONLY Serial No. up to 2,001,396**

**BVM-1410PM ONLY Serial No. up to 2,000,020**

***2, 3**

**HG, HH board**

**BVM-1410P ONLY Serial No. 2,001,397 and Higher**

**BVM-1410PM ONLY Serial No. 2,000,021 and Higher**

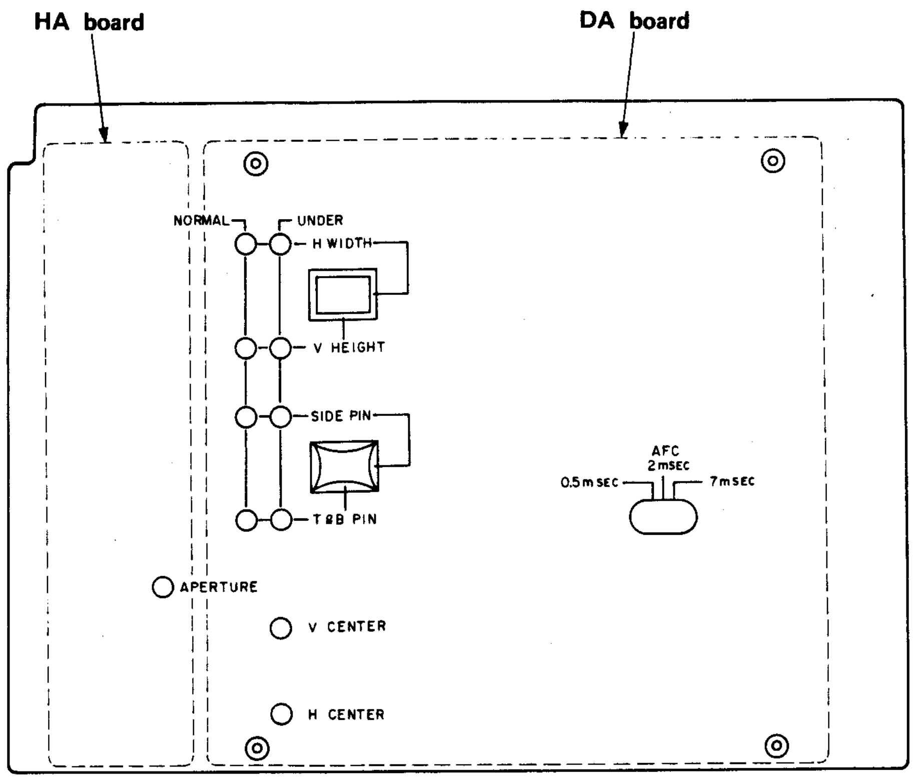
## 4-3. QUICK REFERENCE

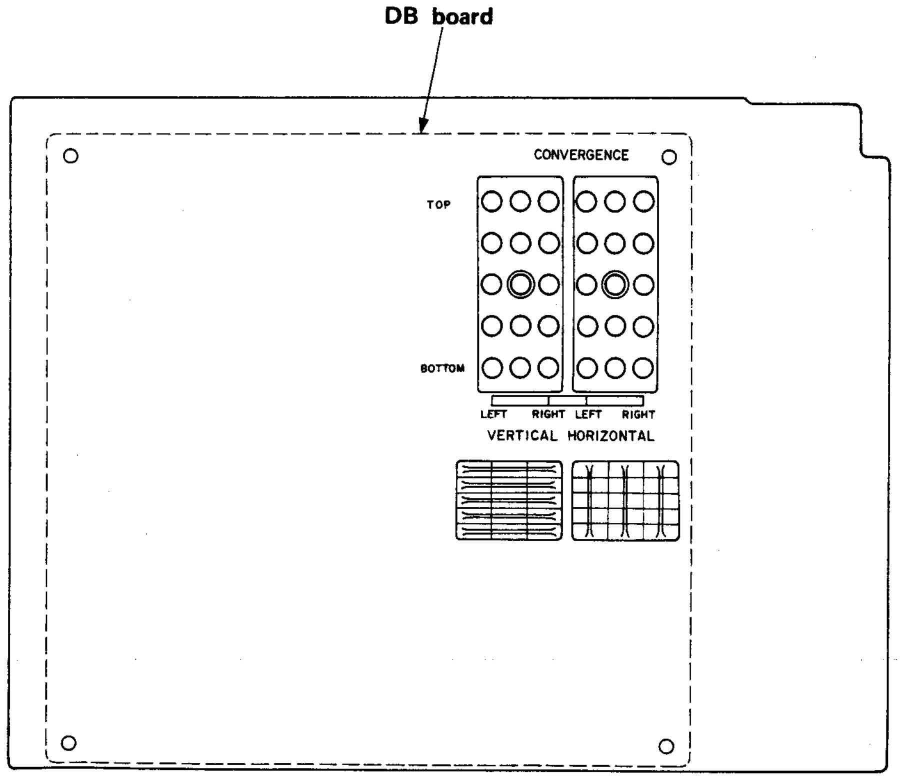
| SECTION \ BOARD | BA | BD | BM | BG | BH | BI | BJ | BK | DA | DB | EA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CIRCUIT DESCRIPTION | 3-1 | 3-17 | 3-19 | 3-3 | 3-5 | 3-7<br>3-15 | 3-9 | 3-13<br>3-15 | 3-29 | 3-25<br>3-27 | 3-33 |
| ADJUSTMENTS | 4-21<br>4-23 | 4-31 |  | 4-21<br>4-27<br>4-49 | 4-21 | – | 4-19<br>4-30<br>4-46 | 4-47 | 4-50 | – | – |
| BLOCK DIAGRAM | 3-2 | 3-18 | 3-20 | 3-4 | 3-6 | 3-8 | 3-10 | 3-14 | 3-31 | 3-26 | 3-34 |
| MOUNTING DIAGRAM | 5-7 | 5-15 |  | 5-17 | 5-25 | 5-27 | 5-35 | 5-37 | 5-45 | 5-47 | 5-52 |
| SCHEMATIC DIAGRAM | 5-9 | 5-13 |  | 5-19 | 5-23 | 5-29 | 5-33 | 5-39 | 5-43 | 5-49 | 5-55 |
| ELECTRICAL PARTS LIST | 7-1 | 7-3 |  | 7-7 | 7-9 | 7-11 | 7-14 | 7-16 | 7-19 | 7-22 | 7-25 |

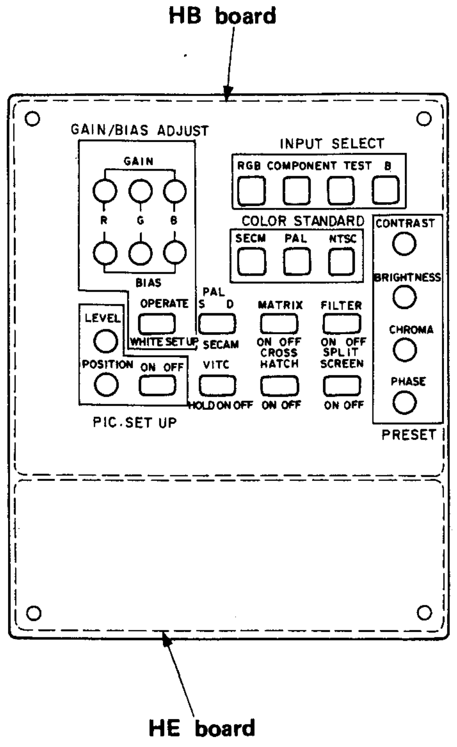
| SECTION \ BOARD | EB | GA | GB | C | PA | PB | HA | HB | HC | HD | X |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CIRCUIT DESCRIPTION | 3-21<br>3-25 | 3-23 | 3-23 | – | 3-35 | – | – | – | – | – | – |
| ADJUSTMENTS | – | – | – | – | – | – | – | 4-18<br>4-21 | – | – | – |
| BLOCK DIAGRAM | 3-22<br>3-26 | 3-24 | 3-24 | – | 3-36 | – | – | – | – | – | – |
| MOUNTING DIAGRAM | 5-53 | 5-59 | 5-58 | 5-64 | 5-65 | 5-64 | 5-70 | 5-70 | 5-69 | 5-69 | 5-69 |
| SCHEMATIC DIAGRAM | 5-55 | 5-61 | 5-62 | 5-68 | 5-67 | 5-68 | 5-72 | 5-71 | 5-71 | 5-72 | 5-72 |
| ELECTRICAL PARTS LIST | 7-26 | 7-27 | 7-27 | 7-18 | 7-32 | 7-33 | 7-30 | 7-31 | 7-31 | 7-31 | 7-35 |

| SECTION \ BOARD | Y | GC | QA | V | W | TA | TB | Z | HE | QB | HG | HH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CIRCUIT DESCRIPTION | – | – | 3-1 | – | – | – | – | – | – | 3-1 | – | – |
| ADJUSTMENTS | – | – | – | – | – | – | – | – | – | – | – | – |
| BLOCK DIAGRAM | – | – | 3-2 | – | – | – | – | – | – | 3-2 | – | – |
| MOUNTING DIAGRAM | 5-69 | 5-73 | 5-73 | 5-74 | 5-73 | 5-77 | 5-81 | 5-85 | – | 5-73 | 5-69 | 5-69 |
| SCHEMATIC DIAGRAM | 5-72 | 5-75 | 5-75 | 5-76 | 5-75 | 5-79 | 5-83 | – | – | 5-76 | 5-71 | 5-71 |
| ELECTRICAL PARTS LIST | 7-35 | 7-30 | 7-34 | 7-35 | 7-35 | 7-34 | 7-34 | – | 7-31 | 7-34 | 7-31 | 7-32 |

## 4-4. SUB CONTROL PANEL LOCATION


HA board
DA board
NORMAL
UNDER
H WIDTH
V HEIGHT
SIDE PIN
T&B PIN
APERTURE
V CENTER
H CENTER
AFC
2 mSEC
0.5 m SEC
7 m SEC


DB board
CONVERGENCE
TOP
BOTTOM
LEFT
RIGHT
LEFT
RIGHT
VERTICAL
HORIZONTAL


HB board
GAIN/BIAS ADJUST
GAIN
R
G
B
BIAS
INPUT SELECT
RGB
COMPONENT
TEST
B
COLOR STANDARD
SECM
PAL
NTSC
CONTRAST
BRIGHTNESS
CHROMA
PHASE
PRESET
LEVEL
POSITION
ON OFF
OPERATE
WHITE SET UP
PAL
S
D
SECAM
MATRIX
ON OFF
FILTER
ON OFF
VITC
HOLD ON OFF
CROSS HATCH
ON OFF
SPLIT SCREEN
ON OFF
PIC. SET UP
HE board

## 4-5. SETUP ADJUSTMENT IN CASE OF PICTURE TUBE REPLACEMENT

When the picture tube has been replaced, make the following adjustments. Convergence and white balance are normally adjusted by POT's on the sub control panel.
(Refer to pages 4-6, 4-7 and 4-9)

**[Jigs Tools and Measurement Equipment Required]**

1. SIGNAL GENERATOR (TEKTRONIX 1411, 1412 Series)
2. COLOR ANALYZER
3. LUMINANCE METER

**[Landing adjustment]**

1. Connect signal generator and receive a white signal.
2. Turn BRIGHTNESS and CONTRAST switch PRESET (⎍).
3. Face the CRT screen toward East (or West) and press the DEGAUSS switch.
4. Set the purity knob to mechanical center as shown in Fig. 1-1. (You can see through the hole.)

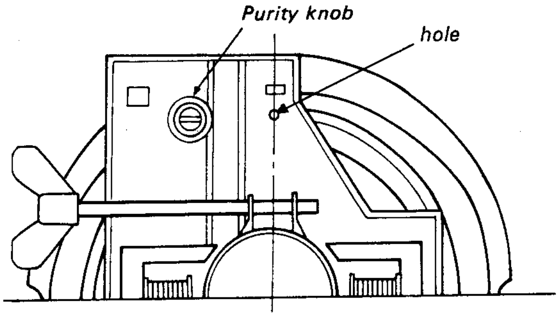


*Fig. 1-1.*

5. Slide DY (Deflection Yoke) as far forward as possible.
6. Set the neck assembly in the position shown in Fig. 1-2.

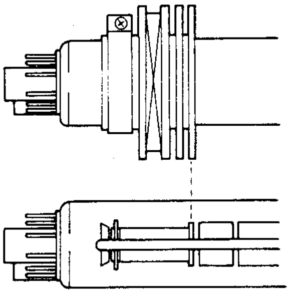


*Fig. 1-2.*

7. Set the screen to green only (R and B on the FRONT PANEL (L)) are in the IN position and G in the OUT position).
8. Turn purity knob as shown in Fig. 1-3 to bring the green on the center of the screen.

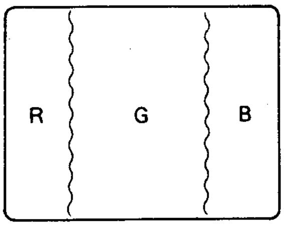


*Fig. 1-3.*

9. Slide DY back for uniform green raster.
10. Make the screen red only (G and B on the FRONT PANEL (L)) are in the IN position and R in the OUT position) and check landing.
11. Make the screen blue only (R and G on the FRONT PANEL (L)) are in the IN position and B in the OUT position) and check landing.
12. Adjust DY tilt and tighten DY set-screw. (Using an internal cross hatch signal (S13 on HB Boards), it is easy to adjust DY tilt.)
13. Secure the DY with the spacers. (Fig. 1-4)

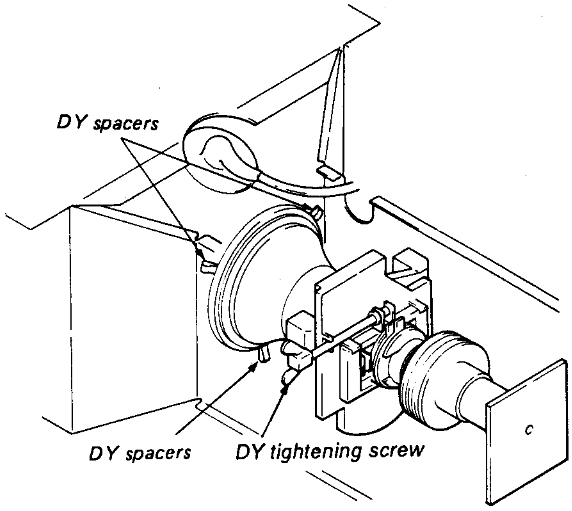
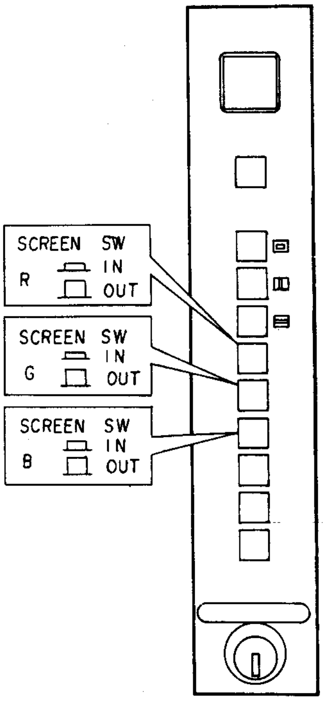


*Fig. 1-4.*

- **Final check**
  After adjustments, check that there is no mislanding by facing the CRT towards East, West, North and South directions.

**FRONT PANEL (L)**



**[Focus adjustment]**

1. Connect signal generator (1411 and 1412 series).
2. Input a dot or cross-hatch signals.
3. Adjust the FOCUS control for best focus in the central portion of the screen as shown in Fig. 1-5.

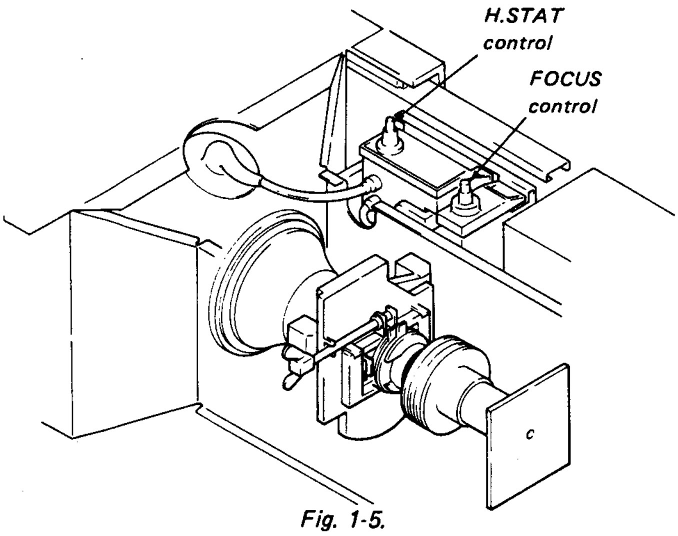
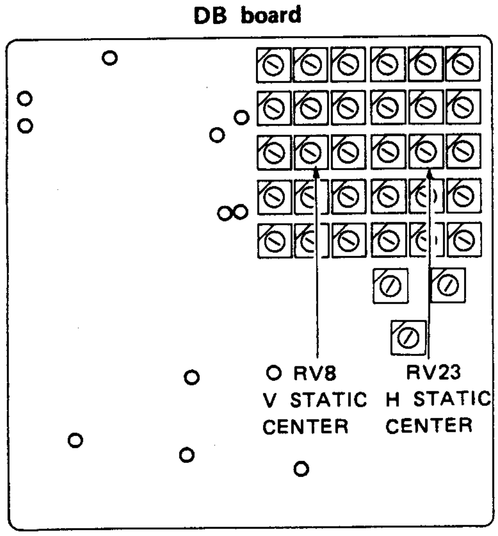

H.STAT control
FOCUS control
C

Fig. 1-5.

**[Convergence Adjustment]**

**Preparation**

1. Complete the signal generator connection and feed the dot and cross-hatch signals.
2. Set the CONTRAST and BRIGHTNESS controls at the points where the dots and the cross-hatch can be observed clearly.
3. Set the H. STATIC CENTER control (RV23) and V. STATIC CENTER control (RV8) on the DC board to mechanical center as shown in Fig. 1-6.


DB board
RV8
V STATIC CENTER
RV23
H STATIC CENTER

* Mechanical center

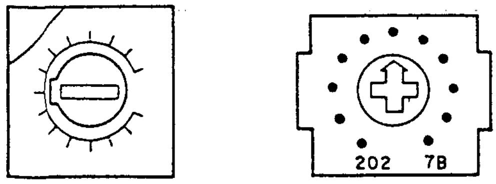


Fig. 1-6.

**[Static Convergence]**

- **Horizontal Static Convergence**

1. Adjust H. STAT control of HV BLOCK to match the convergence of red and green in the horizontal direction at screen center.
2. Perform the HMC correction when blue is out of convergence in the same direction on all over the screen.
3. Move the BMC magnet to correct H. static convergence as shown in Fig. 1-8.

- **Vertical Static Convergnce**

1. Adjust the V. STATIC CENTER (RV8) on the DB board to match the convergence of red and green in the vertical direction at screen center.
2. When blue is out of the convergence in the same direction all over the screen, perform the VMC correction.
3. Move the BMC magnet to correct static convergence as shown in Fig. 1-9.

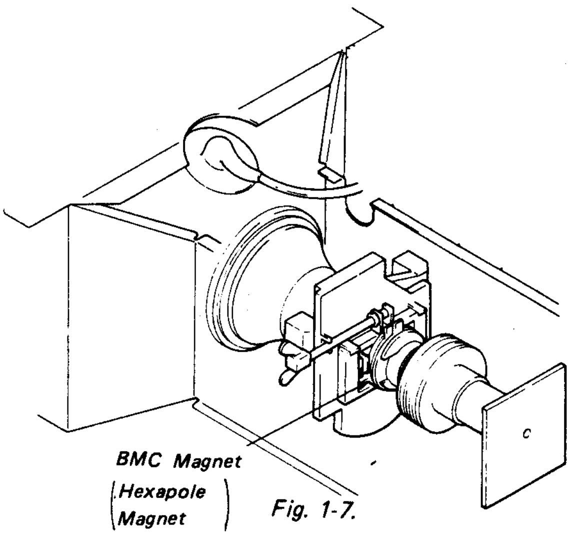

C
BMC Magnet
(Hexapole Magnet)

Fig. 1-7.

- **HMC and VMC correction for BMC Magnet.**

1. HMC (Horizontal, Mis, convergence) correction and motion of the Electron Beam with the Hexapole Magnet.

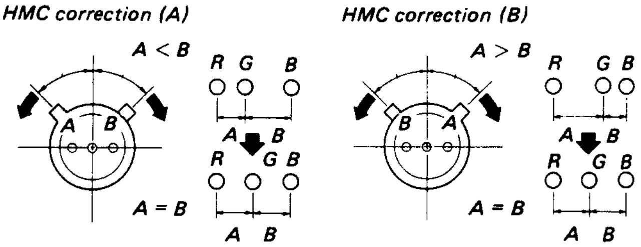

HMC correction (A)
A < B
R G B
A B
R G B
A = B
A B
HMC correction (B)
A > B
R G B
B A
A B
R G B
A = B
A B

Fig. 1-8.

2. VMC (Vertical, Mis, convergence) correction and motion of the Electron Beam with the Hexapole Magnet.

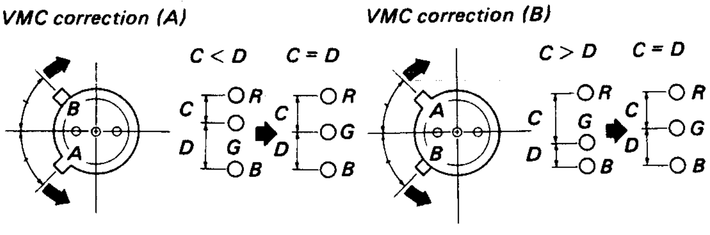

VMC correction (A)
C < D
C = D
B
A
C
D
R
G
B
VMC correction (B)
C > D
C = D
A
B
C
D
R
G
B

Fig. 1-9.

## [DYNAMIC CONVERGENCE]

1. Adjust CONVERGENCE controls (RV1 ~ RV30) on the DB board as shown in Fig. 1-10.
2. It can be adjusted as Red and Blue move in symmetry to the Green. (Green does not move)
3. Adjust the convergence corresponding to the portion of the screen as follows.
4. Always match the convergence in the order of center → on Y axis → on X axis → corner against the screen.
   (Recomandatory order is shown in Sub control panel inside the drawer).

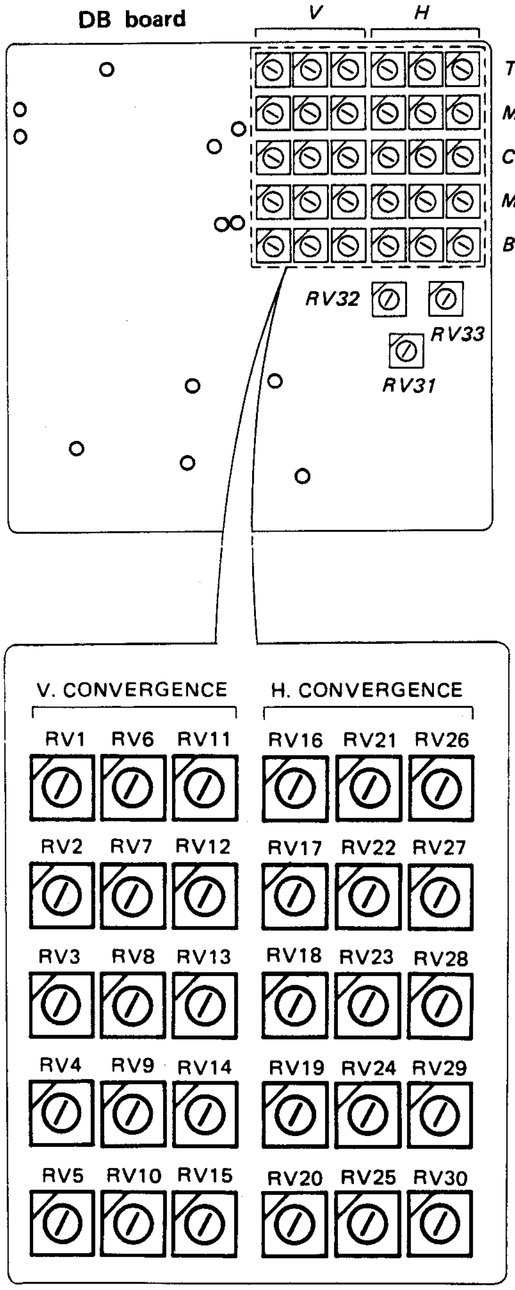

DB board
V
H
TOP
MIDDLE
CENTER
MIDDLE
BOTTOM
RV32
RV33
RV31
V. CONVERGENCE
H. CONVERGENCE
RV1 RV6 RV11
RV16 RV21 RV26
RV2 RV7 RV12
RV17 RV22 RV27
RV3 RV8 RV13
RV18 RV23 RV28
RV4 RV9 RV14
RV19 RV24 RV29
RV5 RV10 RV15
RV20 RV25 RV30

*Fig. 1-10.*

## [CONVERGENCE PROCESS]

1. UNDER SCAN switch .................. NOR (□)
2. Adjust RV23 and RV8 on the DB board to coincide with R, G and B dots at the center of the screen as shown in Fig. 1-11.

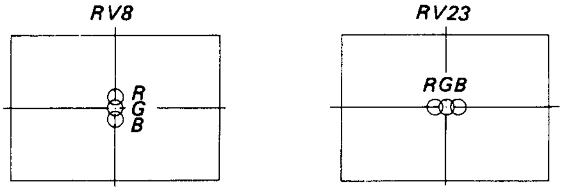

RV8
R
G
B
RV23
RGB

*Fig. 1-11.*

3. Adjust RV6, RV10, RV21, and RV25 on the DB board to coincide with the R, G and B dots as shown in Fig. 1-12.

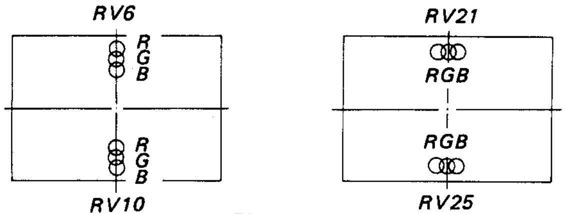

RV6
R
G
B
R
G
B
RV10
RV21
RGB
RGB
RV25

*Fig. 1-12.*

4. Adjust RV3, RV13 and RV18, RV28 on the DB board to coincide with the R, G and B dots as shown in Fig. 1-13.

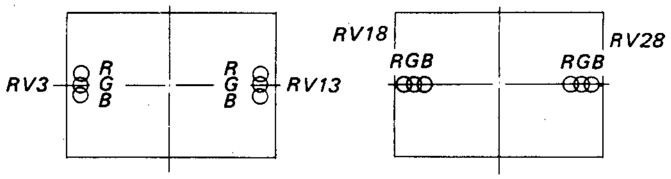

RV3
R
G
B
R
G
B
RV13
RV18
RGB
RGB
RV28

*Fig. 1-13.*

5. Adjust RV1, RV5 and RV11, RV15 on the DB board to coincide with the R, G and B dots as shown in Fig. 1-14.

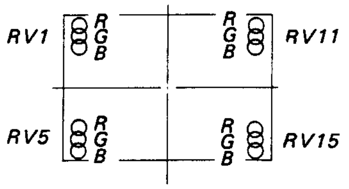

RV1
R
G
B
R
G
B
RV11
RV5
R
G
B
R
G
B
RV15

*Fig. 1-14.*

6. Adjust RV16, RV20 and RV26, RV30 on the DB board to coincide with the R, G and B dots as shown in Fig. 1-15.

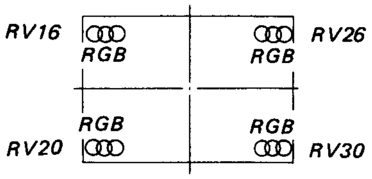

RV16
RGB
RGB
RV26
RGB
RGB
RV20
RV30

Fig. 1-15.

7. Adjust RV7, RV9 and RV22, RV24 on the DB board to coincide with the R, G and B dots as shown in Fig. 1-16.

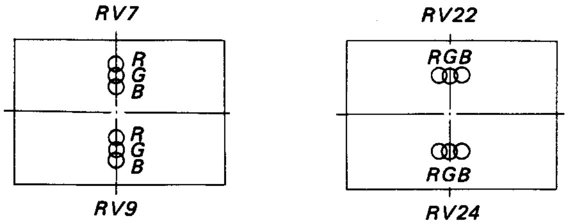

RV7
R
G
B
R
G
B
RV9
RV22
RGB
RGB
RV24

Fig. 1-16.

8. Adjust RV2, RV4 and RV12, RV14 on the DB board to coincide with the R, G and B dots as shown in Fig. 1-17.

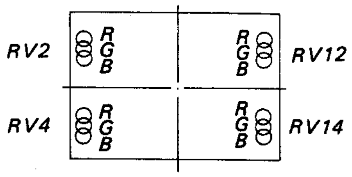

RV2
R
G
B
R
G
B
RV12
RV4
R
G
B
R
G
B
RV14

Fig. 1-17.

9. Adjust RV17, RV19 and RV27, RV29 on the DB board to coincide with the R, G and B dots as shown in Fig. 1-18.

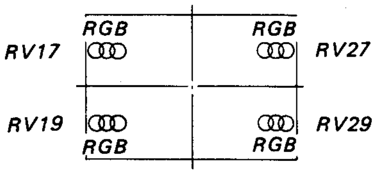

RGB
RGB
RV17
RV27
RV19
RV29
RGB
RGB

Fig. 1-18.

10. UNEDR SCAN switch . . . . . . . . . . . . . . UNDER (▭ )

11. Adjust RV31 (UNDER SCAN Y. BOW) on the DB board to coincide with the R, G and B dots as shown in Fig. 1-19.

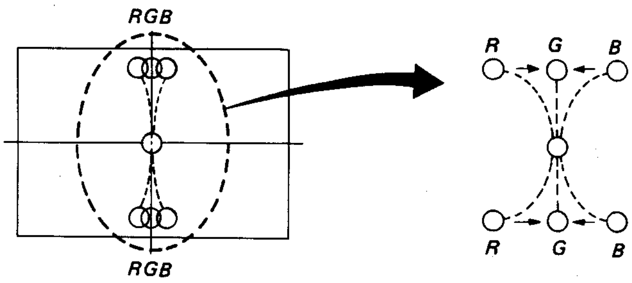

RGB
RGB
R
G
B
R
G
B

Fig. 1-19.

12. Adjust RV32 and RV33 (UNDER SCAN H. AMP) on the DB board to coincide with the R, G and B dots as shown in Fig. 1-20.

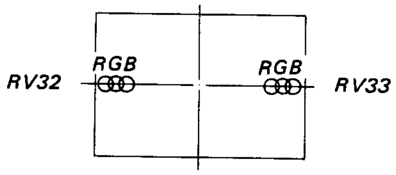
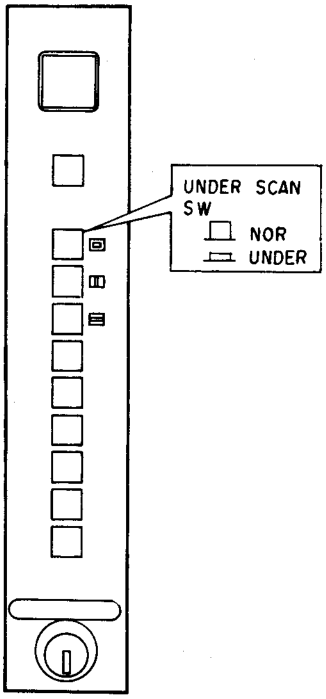
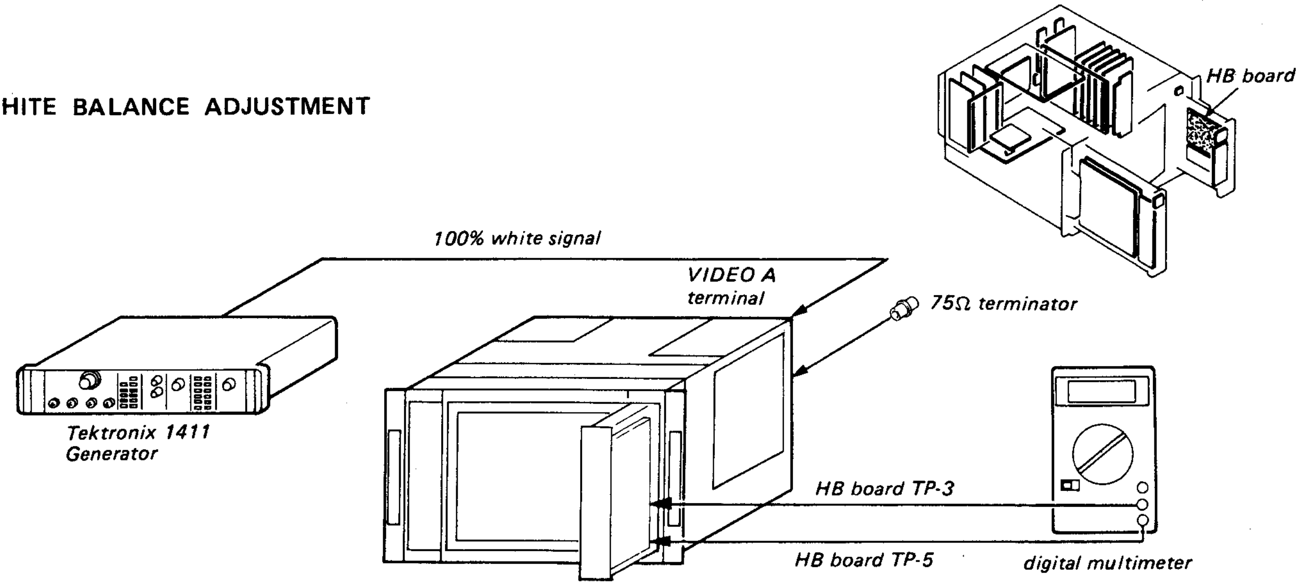

RV32
RGB
RGB
RV33

Fig. 1-20.

## FRONT PANEL (L)


UNDER SCAN
SW
NOR
UNDER

## WHITE BALANCE ADJUSTMENT

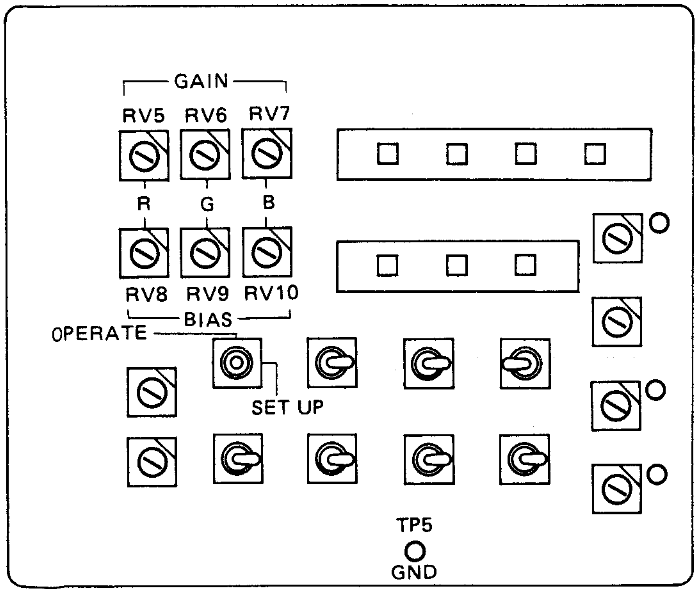

HB board
100% white signal
VIDEO A terminal
75Ω terminator
Tektronix 1411 Generator
HB board TP-3
HB board TP-5
digital multimeter

1. Input 100% white signal to VIDEO A connector.
2. WHITE/OPERATE/SET UP switch ............................ SET UP.
3. Connect the digital multimeter between the mechanical center of the RV2 and GND on the HD board.
4. BRIGHTNESS MANUAL switch.................... MANUAL. (▭)
5. Adjust with the BRIGHTNESS control so that the voltage of the digital multimeter becomes –0.7 vdc.
6. Turn BIAS controls (RV8: Red, RV9: Green, RV10: Blue) on the HB board to adjust the BRIGHTNESS to 0.5NIT and white balance using COLOR ANALYZER and check 0.5NIT by LUMINANCE METER.
   *1 HD board is replaced by HG board from the serial No. shown below.
   In this case, connect the digital multimeter between the TP1 and GND on the HG board.

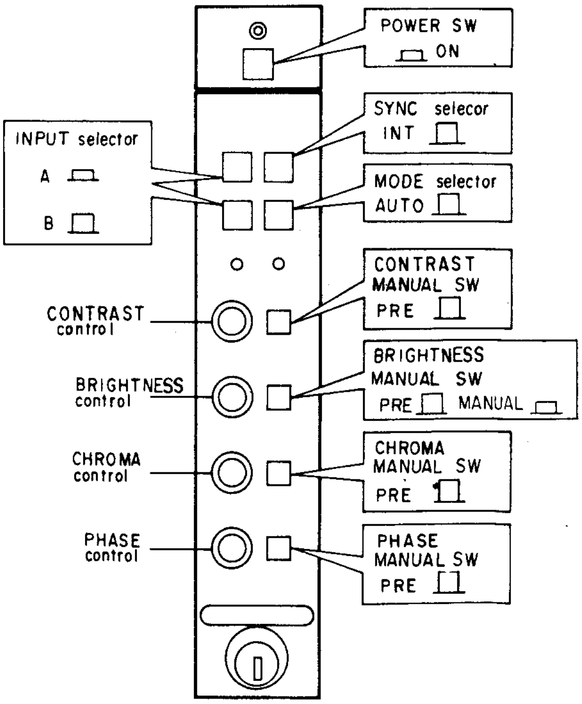
HG board:
BVM-2010P only, serial No. 2001397 and higher
BVM-2010PM only, serial No. 21000021 and higher

7. BRIGHTNESS MANUAL switch . . . . . . . . . . . . PRESET (⎍)
8. WHITE/OPERATE/SET UP switch . . . . . . . . . . OPERATE.
9. Turn GAIN controls (RV5: Red,RV6: Green, RV7:Blue) on the HB board to adjust the BRIGHTNESS at HIGH LIGHT to 103 NIT and white balance using COLOR ANALYZER and check 103 NIT by LUMINANCE METER.
10. Repeat procedure steps 4 to 9 if necessary.

### HB board


GAIN
RV5
RV6
RV7
R
G
B
RV8
RV9
RV10
BIAS
OPERATE
SET UP
TP5
GND

### FRONT PANEL (R)


POWER SW
⎍ ON
SYNC selecor
INT ⎍
INPUT selector
A ⎍
B ⎍
MODE selector
AUTO ⎍
CONTRAST MANUAL SW
PRE ⎍
CONTRAST control
BRIGHTNESS MANUAL SW
PRE ⎍ MANUAL ⎍
BRIGHTNESS control
CHROMA MANUAL SW
PRE ⎍
CHROMA control
PHASE MANUAL SW
PRE ⎍
PHASE control

## 4-6. SAFETY RELATED ADJUSTMENTS

### +B PROTECTOR (◪R52, R53)

When replacing the following conponents (marked ◪ on the schematic diagram), make this confirmation.

◪ GA Board . . R52, R53, Q14, Q13
GB Board . . D5, D6, R5, Q4, Q3, D7, R4, Q5, D8, R19, R20, R21, R22

It is necessary to use a digital multimeter for this confirmation.
Connect a digital multimeter to TP2 on GA Board.

1. Receive a color bar signal and set CONTRAST and BRIGHTNESS controls to preset position. (manual bottom is out.)
2. Short-circuit R55 on GA Board.
3. Connect 100kΩ variable resistor with R68 in parallel on GA Board.
4. Confirm that the reading on the digital multimeter drops abruptly from +182.0V ~ +216.0V to 0V by turning the 100kΩ variable resistor so that the value of the resistor decrease from maximum value.
5. If step 4 isn't satisfied, check that the mounted components are correct.

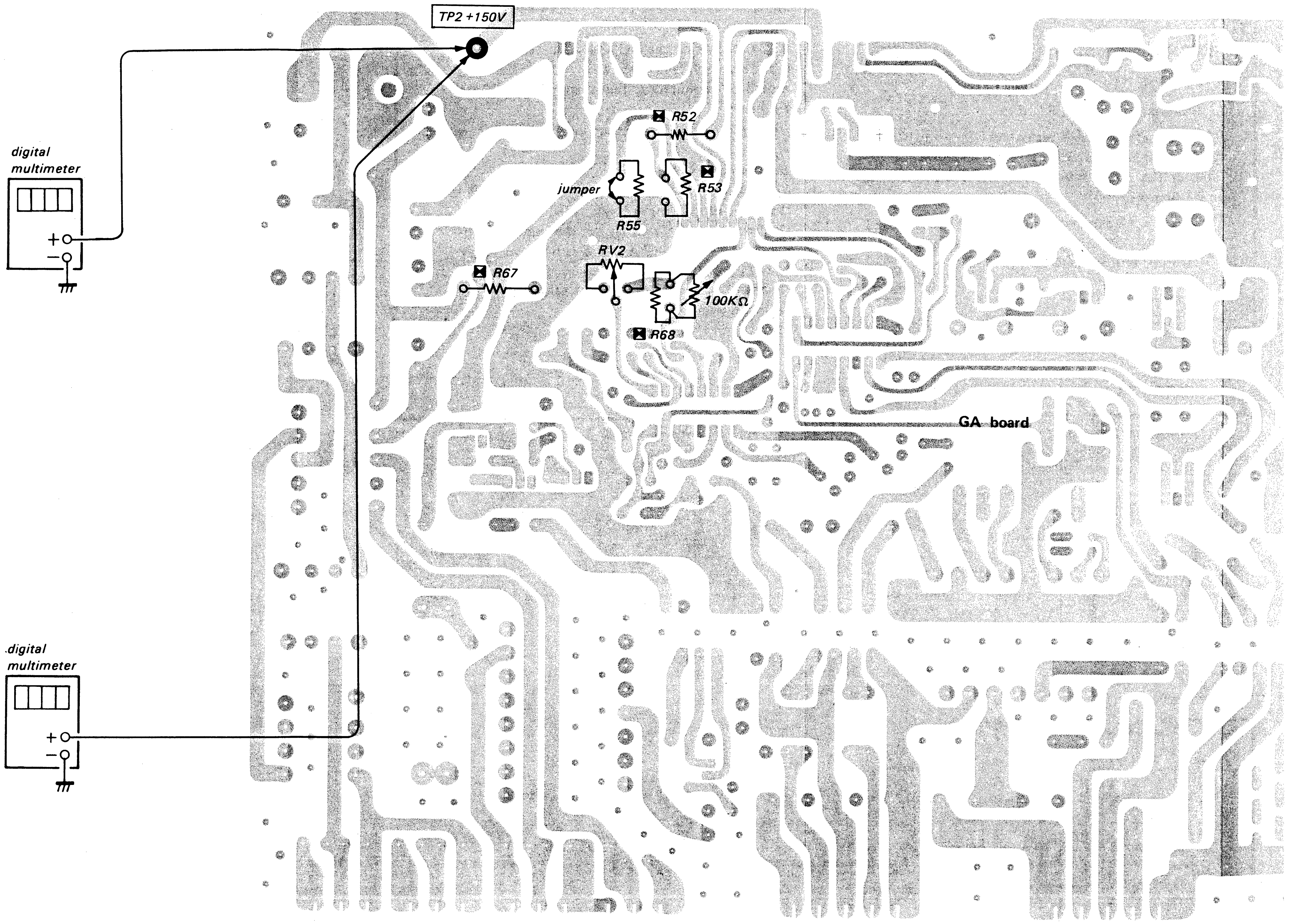
### +B MAX CONFIRMATION (◪ R67, R68)

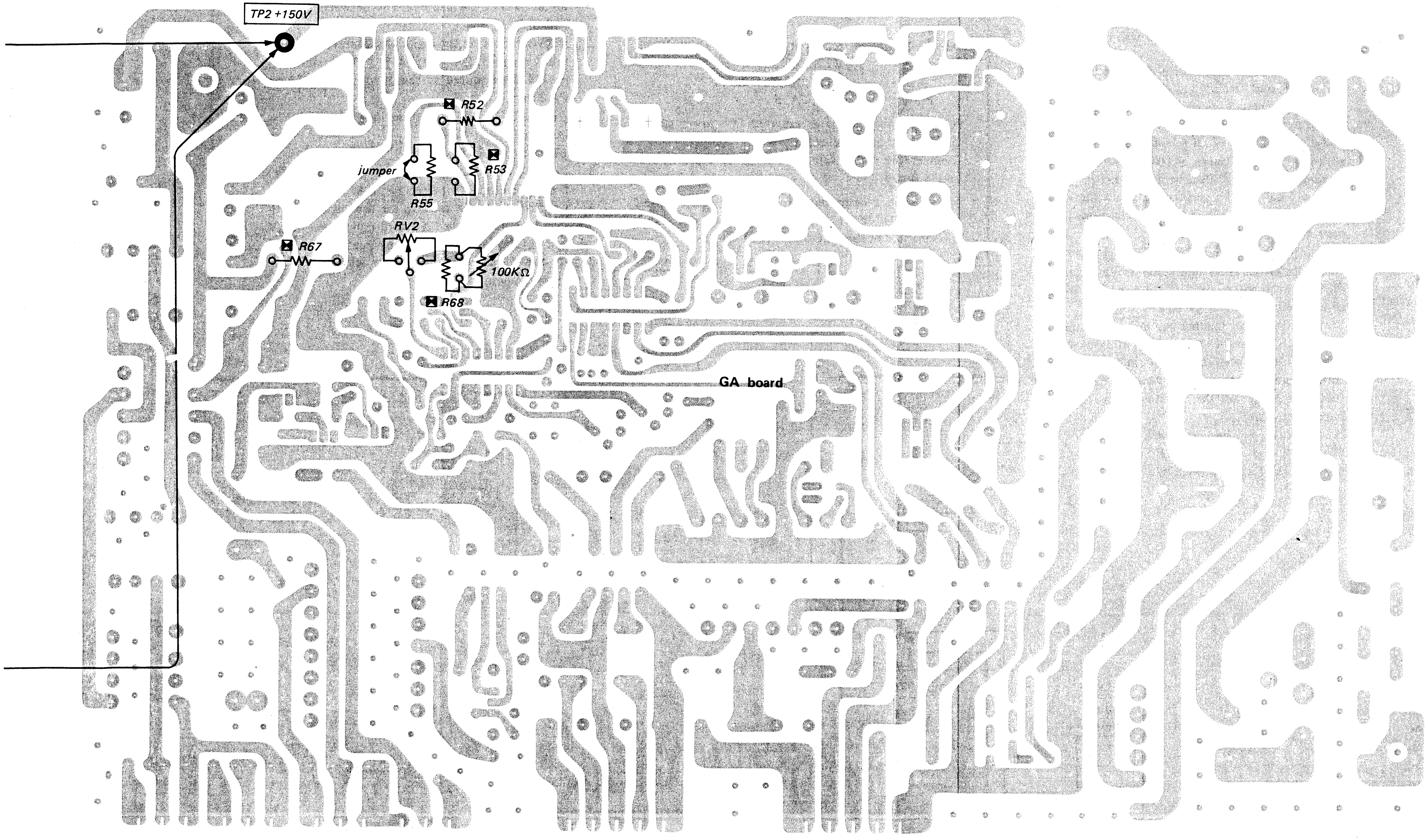
When replacing the following components (marked ◪ on the schematic diagram), make this confirmation.

◪ GA Board . . R67, RV2, R68, IC3, C59, R78

It is necessary to use a digital multimeter for this confirmation.
Connect a digital multimeter to TP2 on GA Board.

1. Receive a color bar signal and set CONTRAST and BRIGHTNESS controls to preset position. (manual bottom is out.)
2. Confirm that the reading on the digital multimeter is between +155.0V and +175.0V when RV2 variable resistor is turned to fully clockwise.
3. After confirmation, make the reading on the digital multimeter into +150.0V ±0.5V by adjusting RV2 on GA Board.




TP2 +150V
R52
jumper
R53
R55
RV2
R67
100KΩ
R68
GA board

## HIGH VOLTAGE HOLD DOWN ADJUSTMENT AND CONFIRMATION

( ☒ R227, R228)

When replacing the following components (marked ◪ on the schematic diagram), make this adjustment.

◪ DCT Block
◪ PA Board . . IC2, R201, R202, D215, R225, R226, R227, R228, D214, R229, R230, D207, R213, R214, D205, R243

It is necessary to use an electrostatic voltmeter or equivalent for this adjustment. Connect the electrostatic voltmeter to the anode cap.

Even though an electrostatic voltmeter may not be used, connect digital multimeters to TP1 and ⑦ pin of IC4 and IHV(1) on PA Board.

**Note:** Use an electrostatic voltmeter which is calibrated, and which has 2 × $10^9\Omega$ or more input impedance.

example: ESH-27X or ESH-23X of the SINGER COMPANY

Use a digital multimeter which has 4 digit or more.

### IN case of using electrostatic voltmeter

1. Receive a color bar signal and set CONTRAST and BRIGHTNESS controls to fully counter-clockwise. (manual button is IN)
2. Connect 200kΩ variable resistor with R125 in parallel on PA Board.
3. Confirm and memorize that the reading on the electrostatic voltmeter drops abruptly from 29.0kV ~ 27.0kV to 0V by turning slowly the 200kΩ variable resistor so that the value of the resistor decrease from maximum value.
4. If step 3 can not be performed, select the value of R227 and R228 (1/6W metal-film) and repeat above step 3.
5. Set CONTRAST and BRIGHTNESS controls to fully clockwise. (maximum; the reading on the digital multimeter of IHV(1) on PA Board should be between −5.9V and −7.7V)
6. Confirm and memorize that the reading on the electrostatic voltmeter drops abruptly from 28.0kV ~ 26.0kV to 0V by turning slowly the 200kΩ variable resister and check the difference of memorize voltage between in step 3 and 6 is over 400V.

### In case of using a digital multimeter

1. Receive a color bar signal and set CONTRAST and BRIGHTNESS controls to fully counter-clockwise. (manual button is IN)
2. Connect 200kΩ variable resistor with R125 in parallel on PA Board.
3. Confirm that the reading on the digital multimeter of TP1 on PA Board is between 9.10V and 9.30V.
4. If step 3 can not be performed, select the value of R227 and R228 (1/6W metal-film) and repeat above step 3.
5. Confirm that the reading on the digital multimeter at ⑦ pin of IC4 on PA Board drop abruptly from between 9.10V and 9.35V by turning slowly the 200kΩ variable resistor.
6. If step 5 can not be performed, select the value of R227 and R228 (1/6W metal-film) and repeat above step 3 through 5.
7. Set CONTRAST and BRIGHTNESS controls fully clockwise. (maximum; the reading on the digital multimeter of IHV(1) on PA Board should be between −5.9V and −7.7V)
8. Confirm that the reading on the digital multimeter at ⑦ pin of IC4 on PA Board drops abruptly from between 9.05V and 8.85V by turning slowly the 200kΩ variable resistor so that the value of the resistor decrease from maximum value.
9. If step 8 can not be performed, select the value of R227 and R228 (1/6W metal-film) and repeat above step 3 through 8.

## BEAM CURRENT PROTECTOR 1 CONFIRMATION

( ☒ R222)

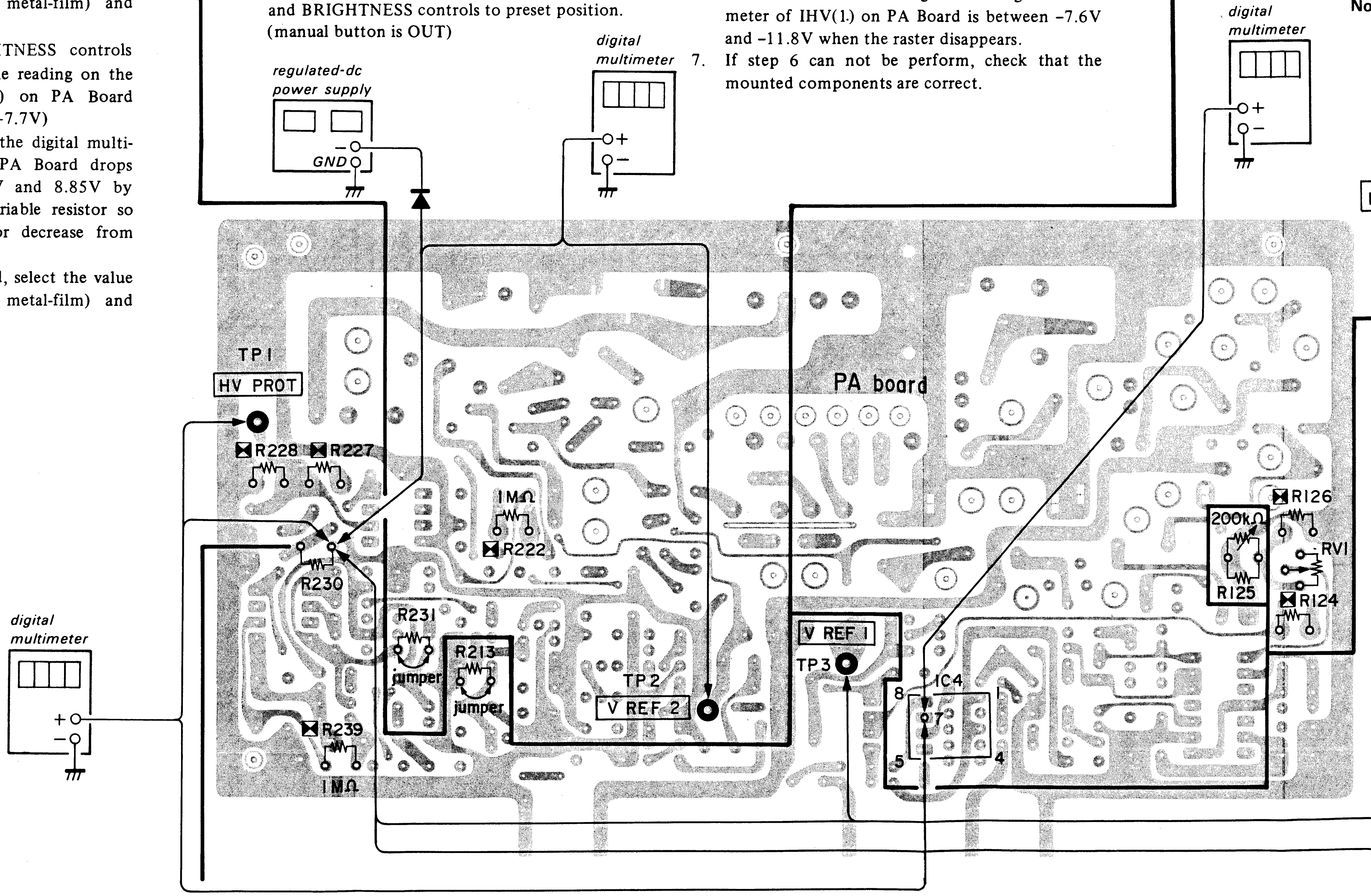
When replacing the following components (marked ◪ on the schematic diagram), make this confirmation.

◪ PA Board . . R201, R202, D215, R220, R221, R222, R223, R224, IC2, D206, R213, R214, D205, R242
PB Board . . FBT, R1, R2

It is necessary to use a regulated DC power supply and a digital multimeter for this confirmation.

Connect the digital multimeters to TP2 and IHV(1) on PA Board.

1. Receive a color bar signal and set CONTRAST and BRIGHTNESS controls to preset position. (manual button is OUT)
2. Confirm that the reading on the digital multimeter of TP2 on PA Board is between +31.0V and +33.5V.
3. If the reading on the digital multimeter of TP2 is more than +32.5V, 1MΩ ±1% ¹⁄₆W (metal-film) should be mounted at the portion of R222 on PA Board.
(Normally in this position no component is mounted.)
4. Short-circuit R213.
5. Connect a regulated dc power supply to IHV(1) through a diode. (for example, 1SS119).
6. Confirm that the reading on the digital multimeter of IHV(1.) on PA Board is between −7.6V and −11.8V when the raster disappears.
7. If step 6 can not be perform, check that the mounted components are correct.



HIGH VOLT TION

When replacing on the schen

◪ DCT Block
PA Board

It is necessary equivalent for static voltmeter Even though a used, connect on PA Board.

Note: Use an brated, input in

exampl

Use a more.

In case of usi

1. Receive and BR (manua

BEAN

When on tion.

◪ PA

PB

It is ne and a d Connec on PA

digital multim

## BEAM CURRENT PROTECTOR 1 CONFIRMATION

( ⧓ R222)

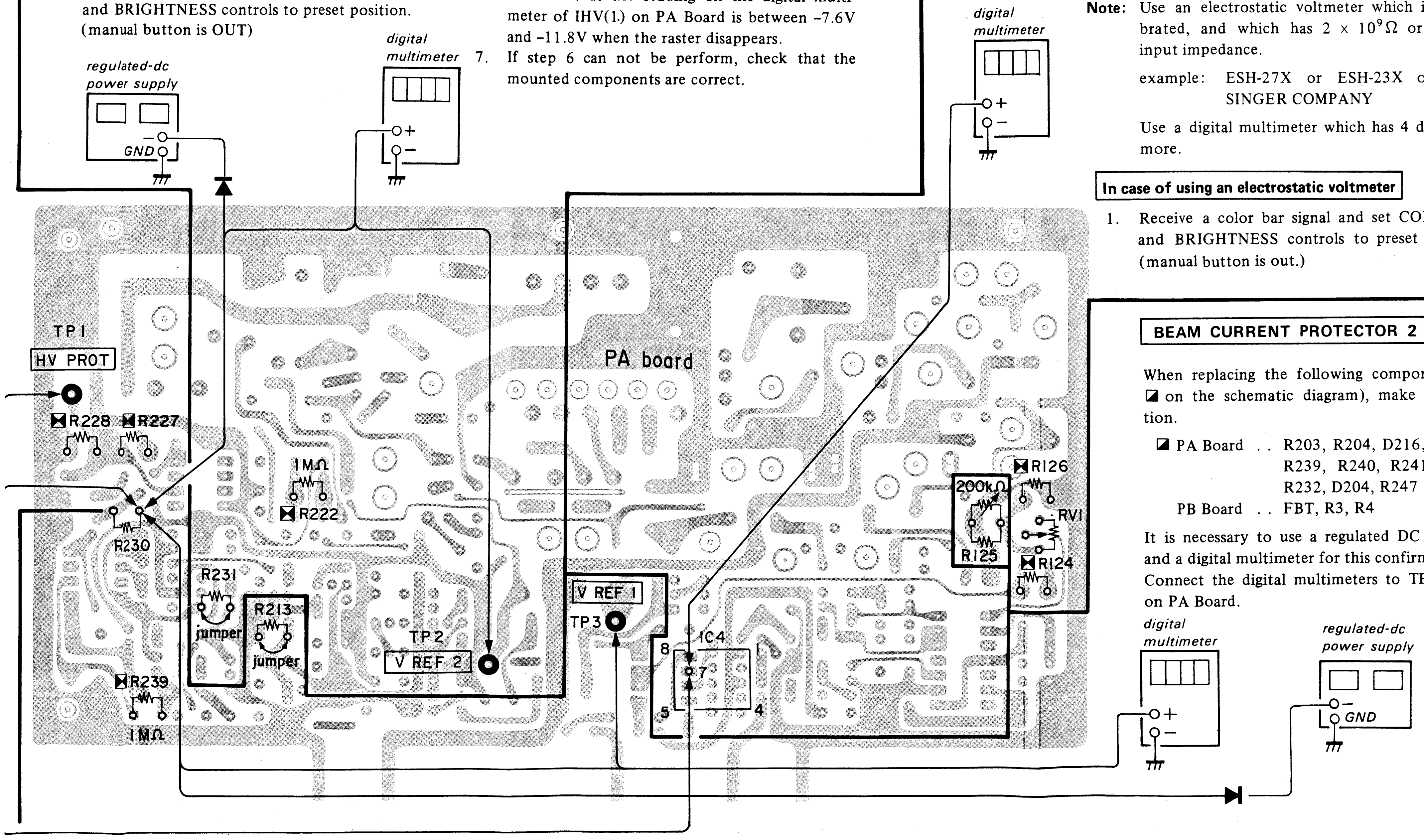
When replacing the following components (marked ◪ on the schematic diagram), make this confirmation.

◪ PA Board . . R201, R202, D215, R220, R221, R222, R223, R224, IC2, D206, R213, R214, D205, R242

PB Board . . FBT, R1, R2

It is necessary to use a regulated DC power supply and a digital multimeter for this confirmation.
Connect the digital multimeters to TP2 and IHV(1) on PA Board.

1. Receive a color bar signal and set CONTRAST and BRIGHTNESS controls to preset position. (manual button is OUT)
2. Confirm that the reading on the digital multimeter of TP2 on PA Board is between +31.0V and +33.5V.
3. If the reading on the digital multimeter of TP2 is more than +32.5V, 1MΩ ±1% 1/6W (metal-film) should be mounted at the portion of R222 on PA Board.
   (Normally in this position no component is mounted.)
4. Short-circuit R213.
5. Connect a regulated dc power supply to IHV(1) through a diode. (for example, 1SS119).
6. Confirm that the reading on the digital multimeter of IHV(1.) on PA Board is between -7.6V and -11.8V when the raster disappears.
7. If step 6 can not be perform, check that the mounted components are correct.



## HIGH VOLTAGE REGULATOR CONFIRMATION

( ⧓ R124, R126)

When replacing the following components (marked ◪ on the schematic diagram), make this adjustment.

◪ DCT Block
PA Board . . IC4, R123, R124, RV1, R125, R126, IC1, R203, R204, D216, R137, R138, R136

It is necessary to use an electrostatic voltmeter or equivalent for this adjustment. Connect the electrostatic voltmeter to the anode cap.
Even though an electrostatic voltmeter may not be used, connect digital multimeters to ⑦ pin of IC4 on PA Board.

**Note:** Use an electrostatic voltmeter which is calibrated, and which has $2 \times 10^9 \Omega$ or more input impedance.

example: ESH-27X or ESH-23X of the SINGER COMPANY

Use a digital multimeter which has 4 digit or more.

### In case of using an electrostatic voltmeter

1. Receive a color bar signal and set CONTRAST and BRIGHTNESS controls to preset position. (manual button is out.)
2. Turn RV1 on the PA Board for a maximum reading on the electrostatic voltmeter. (Fully clockwise)
3. Confirm that the reading on the electrostatic voltmeter is between 25.30kV and 25.50kV.
4. If necessary, select the value of R124 and R126 (1/6W metal-film) and repeat above step 2 through 4.
5. After confirmation, adjust RV1 for 25.0kV ± 0.05kV on the electrostatic voltmeter.

### In case of using a digital multimeter

1. Receive a color bar signal and set CONTRAST and BRIGHTNESS controls to preset position. (manual botton is out.)
2. Turn RV1 on the PA Board for a maximum reading on the digital multimeter at the ⑦ pin of IC4 on PA Board. (Fully clockwise)
3. Confirm that the reading on the digital multimeter is between +8.05V and +8.25V.
4. If necessary, select the value of R124 and R126 (1/6W metal-film) and repeat step 2 through 4.
5. After confirmation, adjust RV1 for +8.08V ± 0.05V on the digital multimeter.

## BEAM CURRENT PROTECTOR 2

( ⧓ R239)

When replacing the following components (marked ◪ on the schematic diagram), make this confirmation.

◪ PA Board . . R203, R204, D216, R237, R238, R239, R240, R241, IC3, R231, R232, D204, R247

PB Board . . FBT, R3, R4

It is necessary to use a regulated DC power supply and a digital multimeter for this confirmation.
Connect the digital multimeters to TP3 and IHV(1) on PA Board.

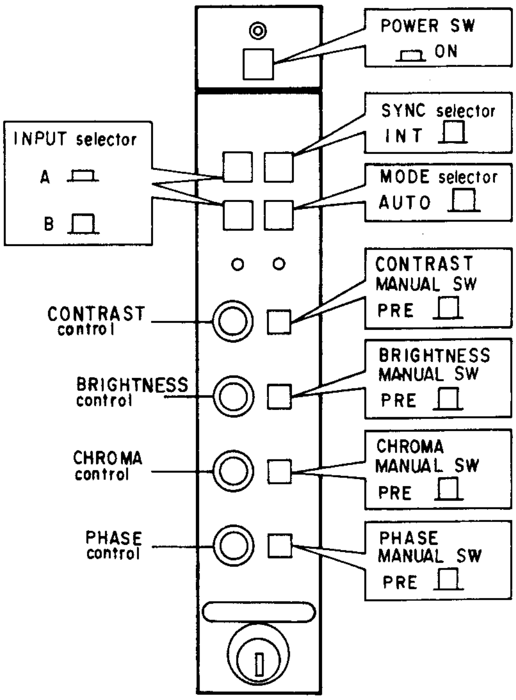
1. Receive a color bar signal and set CONTRAST and BRIGHTNESS controls to preset position. (manual button is OUT)
2. Confirm that the reading on the digital multimeter of TP3 on PA Board is between +31.0V and +33.5V.
3. If the reading on the digital multimeter of TP3 is more than +32.5V, 1MΩ ±1% 1/6W (metal-film) should be mounted at the portion of R239 on PA Board.
   (Normally in this portion no component is mounted.)
4. Short-circuit R213.
5. Connect a regulated dc power supply to IHV(1) through a diode. (For example, 1SS119 etc.)
6. Confirm that the reading on the digital multimeter of IHV(1) on PA Board is between -7.6V and -11.8V when the raster disappears.
7. If step 6. can not be performed, check that the mounted components are correct.

## 4-7. CIRCUIT ADJUSTMENTS

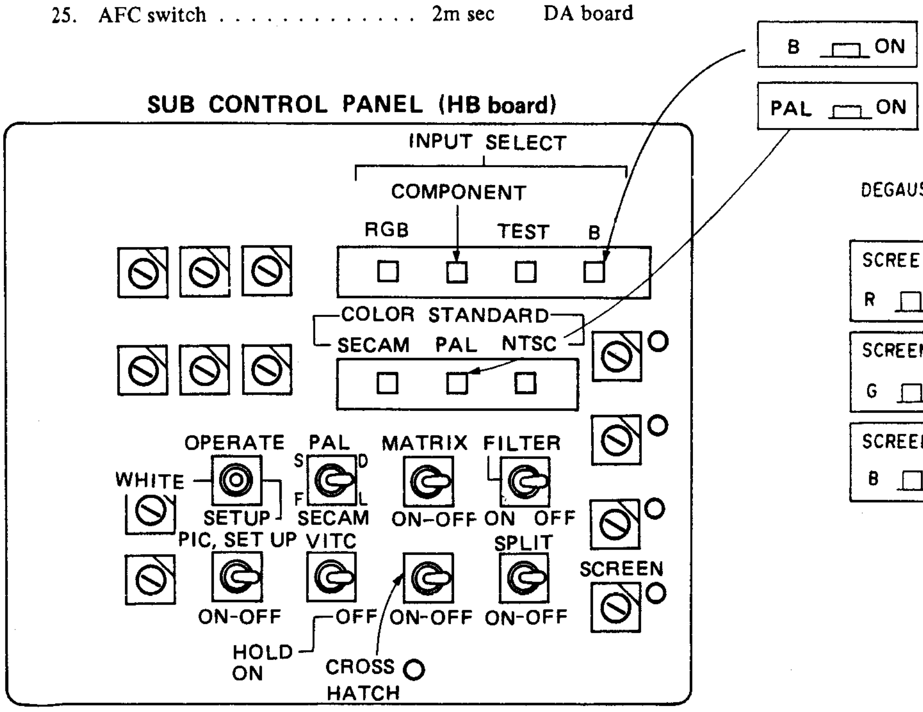
- To make the following adjustments, unless otherwise specified, the controls knobs and switches shall be preset as described below.

| | | | |
|---|---|---|---|
| FRONT PANEL (R) | | | |
| 1. | INPUT selector | A | HC board |
| 2. | SYNC selector | INT | |
| 3. | MODE selector | AUTO | |
| 4. | CONTRAST MANUAL switch | PRESET | HG board (HD) |
| 5. | BRIGHTNESS MANUAL switch | PRESET | |
| 6. | CHROMA MANUAL switch | PRESET | |
| 7. | PHASE MANUAL switch | PRESET | |
| FRONT PANEL (L) | | | |
| 8. | SCAN MODE switch | | |
| | ▣ UNDER SCAN | NOR | HA board |
| | ◫ H. DELAY | NOR | |
| | ⊟ V. DELAY | NOR | |
| 9. | SCREEN switch (R) | NOR | |
| 10. | SCREEN switch (G) | NOR | |
| 11. | SCREEN switch (B) | NOR | |
| 12. | APT switch | NOR | |
| 13. | BLUE ONLY switch | NOR | |
| 14. | COMB/TRAP filter selector | TRAP | |
| SUB CONTROL PANEL | | | |
| 15. | INPUT SELECT buttons | B | HB board |
| 16. | COLOR STANDARD buttons | PAL | |
| 17. | FILTER switch | OFF | |
| 18. | MATRIX switch | OFF | |
| 19. | PAL/SECAM mode selector | D(L) | |
| 20. | WHITE/OPERATE/SET UP selector | OPERATE | |
| 21. | SPLIT SCREEN switch | OFF | |
| 22. | CROSS HATCH switch | OFF | |
| 23. | VITC switch | OFF | |
| 24. | PIC. SET UP switch | OFF | |
| 25. | AFC switch | 2m sec | DA board |

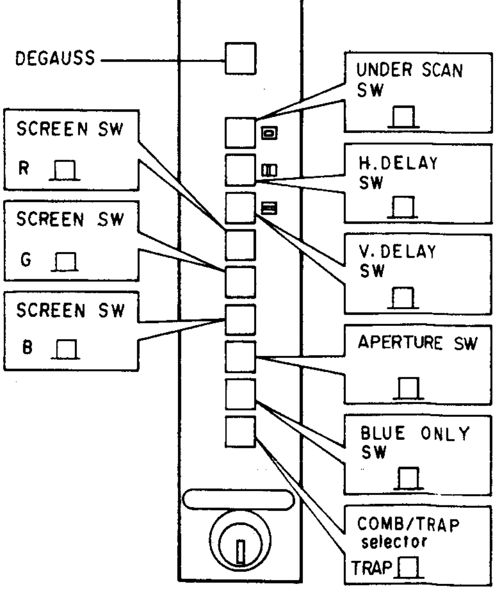
**FRONT PANEL (R)**


POWER SW
ON
INPUT selector
A
B
SYNC selector
INT
MODE selector
AUTO
CONTRAST control
CONTRAST MANUAL SW
PRE
BRIGHTNESS control
BRIGHTNESS MANUAL SW
PRE
CHROMA control
CHROMA MANUAL SW
PRE
PHASE control
PHASE MANUAL SW
PRE

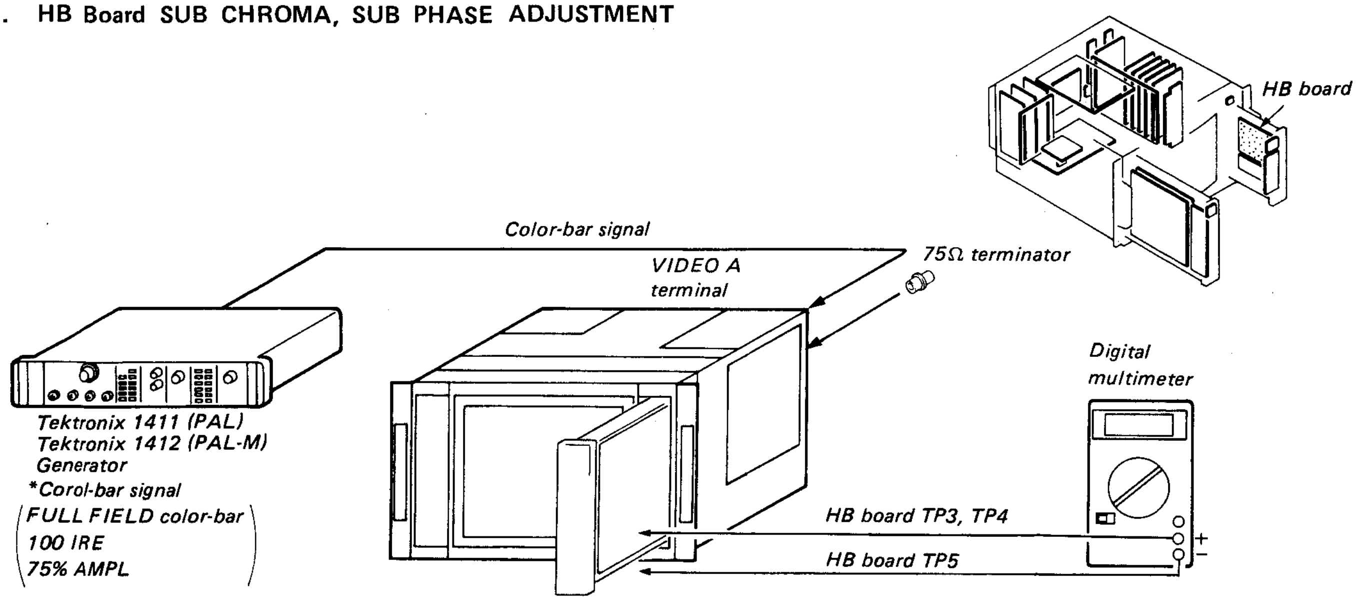
**SUB CONTROL PANEL (HB board)**


B ON
PAL ON
INPUT SELECT
COMPONENT
RGB
TEST
B
COLOR STANDARD
SECAM
PAL
NTSC
OPERATE
PAL
MATRIX
FILTER
WHITE
S
D
F
L
SETUP
SECAM
ON-OFF
ON
OFF
PIC, SET UP
VITC
SPLIT
SCREEN
ON-OFF
OFF
ON-OFF
ON-OFF
HOLD
ON
CROSS
HATCH

**FRONT PANEL (L)**

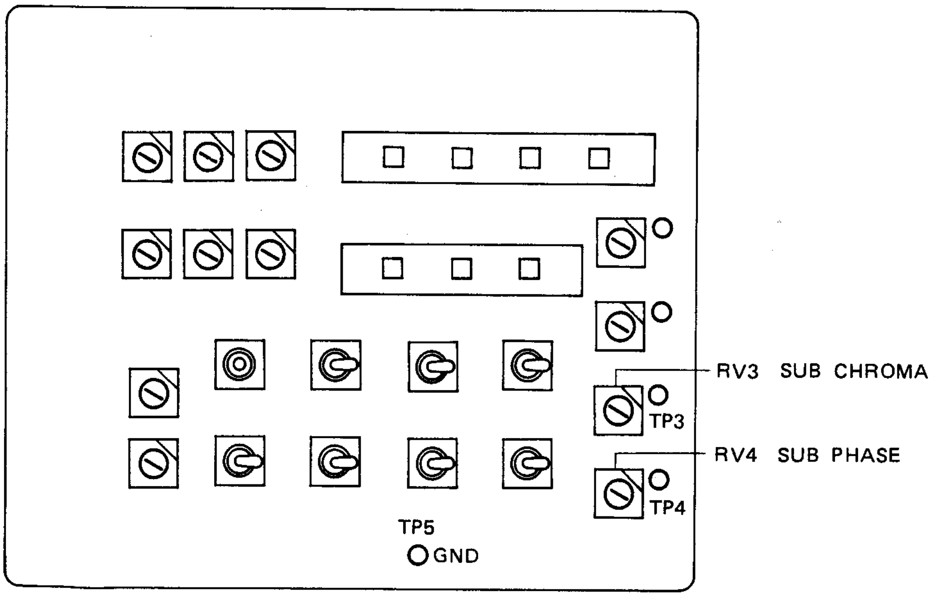

DEGAUSS
UNDER SCAN SW
SCREEN SW R
H.DELAY SW
SCREEN SW G
V.DELAY SW
SCREEN SW B
APERTURE SW
BLUE ONLY SW
COMB/TRAP selector
TRAP

## 1. HB Board SUB CHROMA, SUB PHASE ADJUSTMENT

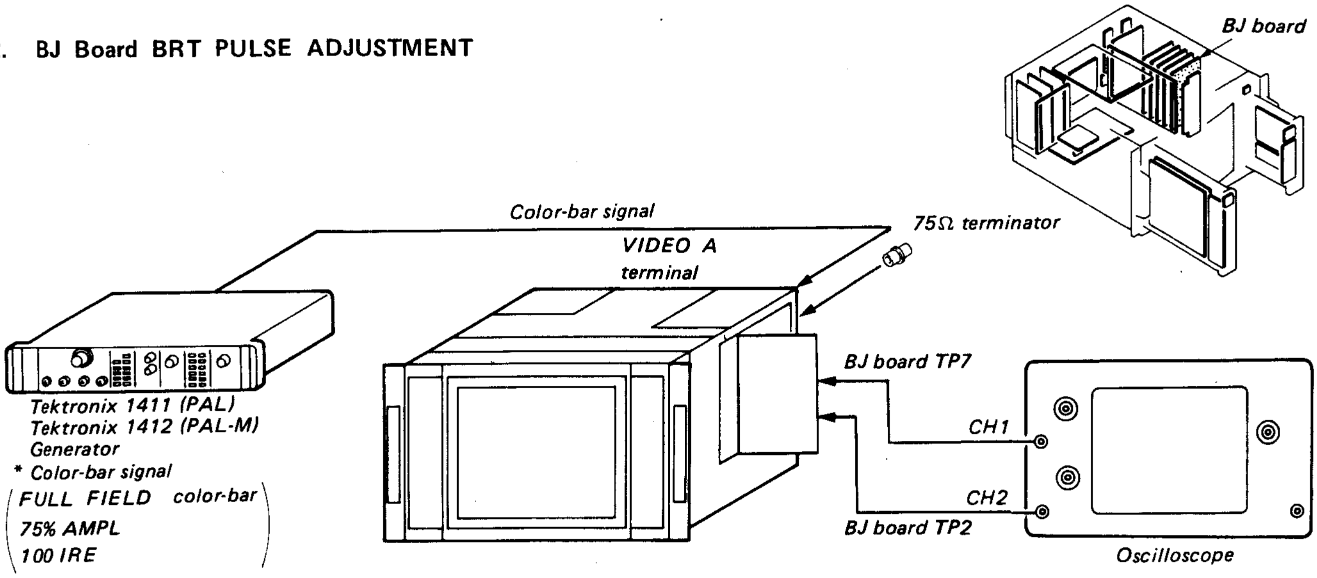

HB board
Color-bar signal
VIDEO A terminal
75Ω terminator
Digital multimeter
Tektronix 1411 (PAL)
Tektronix 1412 (PAL-M)
Generator
*Corol-bar signal
FULL FIELD color-bar
100 IRE
75% AMPL
HB board TP3, TP4
HB board TP5
+
−

1. Connect a digital multimeter to the TP3 of HB board and TP5 (ground).
2. Adjust to −5.5V DC with RV3. (SUB CHROMA)
3. Connect a digital multimeter to the TP4 of HB board and TP5.
4. Adjust to 0V DC with RV4. (SUB PHASE) of HB board.

**HB board**


RV3 SUB CHROMA
TP3
RV4 SUB PHASE
TP4
TP5
GND

## 2. BJ Board BRT PULSE ADJUSTMENT


BJ board
Color-bar signal
VIDEO A terminal
75Ω terminator
BJ board TP7
CH1
CH2
BJ board TP2
Oscilloscope
Tektronix 1411 (PAL)
Tektronix 1412 (PAL-M)
Generator
* Color-bar signal
FULL FIELD color-bar
75% AMPL
100 IRE

1. Input a color-bar signal to VIDEO A terminal of the set.
2. Connect an oscilloscope (CH1 probe) to the TP7 of BJ board and oscilloscope (CH2 probe) to the TP2 of BJ board.
3. Adjust RV7 to obtain the waveform on the oscilloscope as shown in Fig. 2-1.

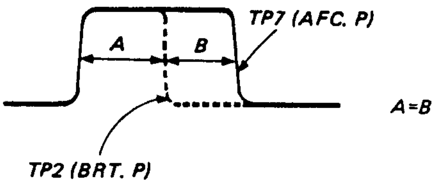
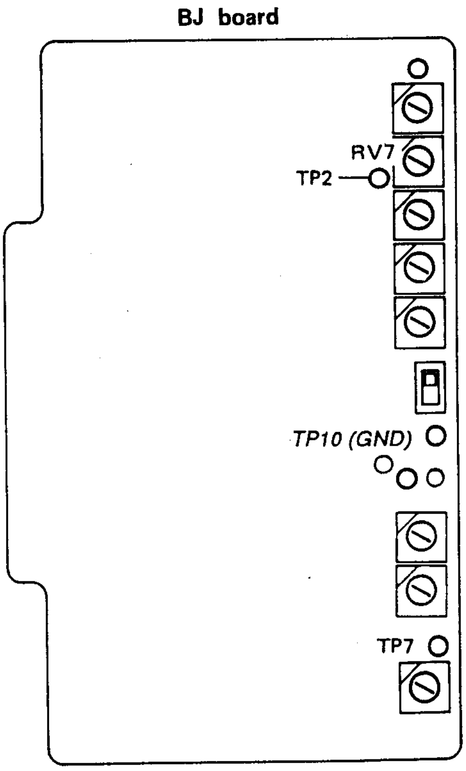
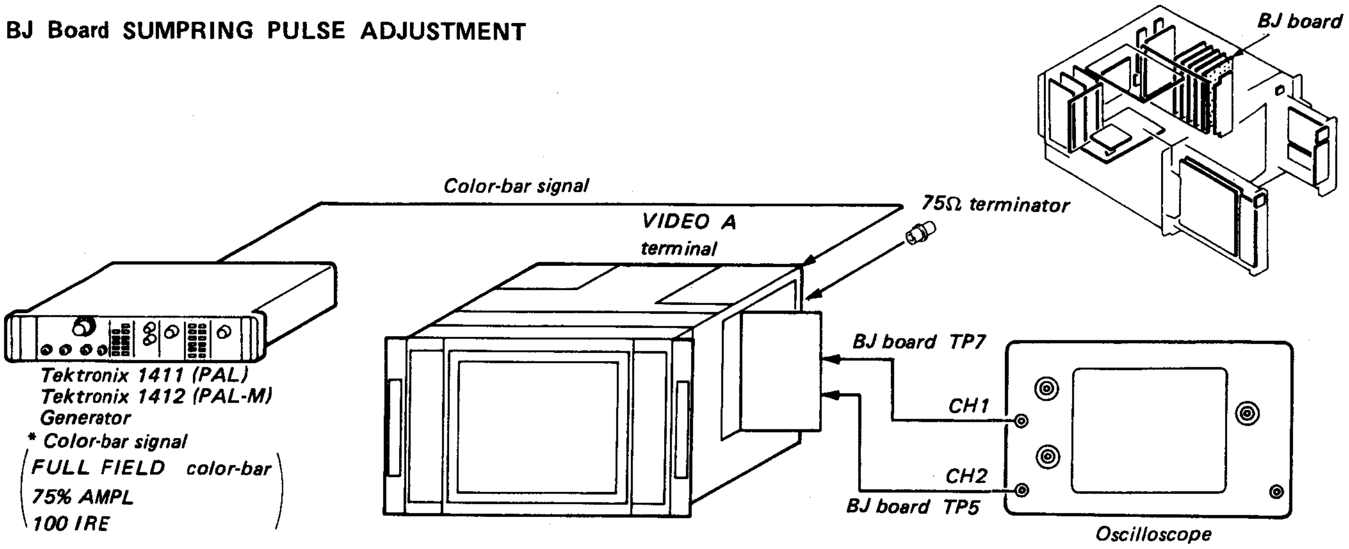

A
B
TP7 (AFC. P)
A=B
TP2 (BRT. P)

Fig. 2-1


BJ board
RV7
TP2
TP10 (GND)
TP7

## BJ Board SUMPRING PULSE ADJUSTMENT


BJ board
Color-bar signal
VIDEO A terminal
75Ω terminator
BJ board TP7
CH1
CH2
BJ board TP5
Oscilloscope
Tektronix 1411 (PAL)
Tektronix 1412 (PAL-M)
Generator
* Color-bar signal
FULL FIELD color-bar
75% AMPL
100 IRE

1. Input a color-bar signal to VIDEO A terminal of the set.
2. Connect an osilloscope (CH 1 probe) to the TP7 of BJ board and Connect an oscilloscope (CH 2 probe) to the TP5 of BJ board.
3. Adjust RV5 to obtain the waveform on the oscilloscope as shown in Fig. 2-2.

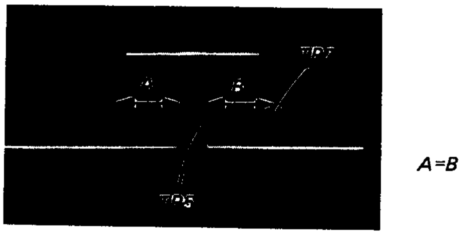
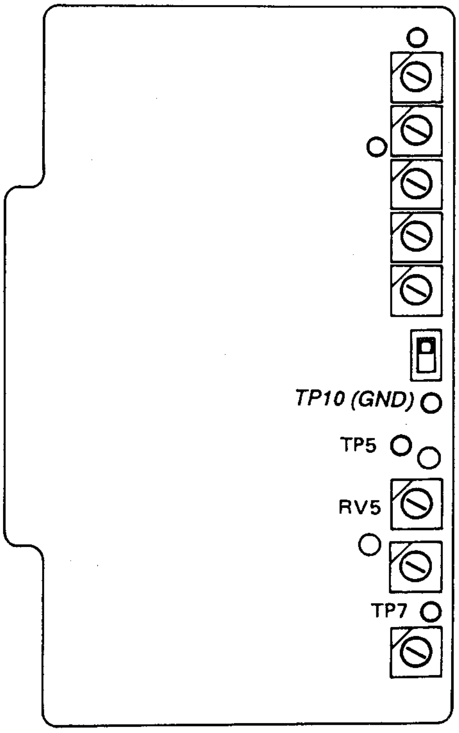
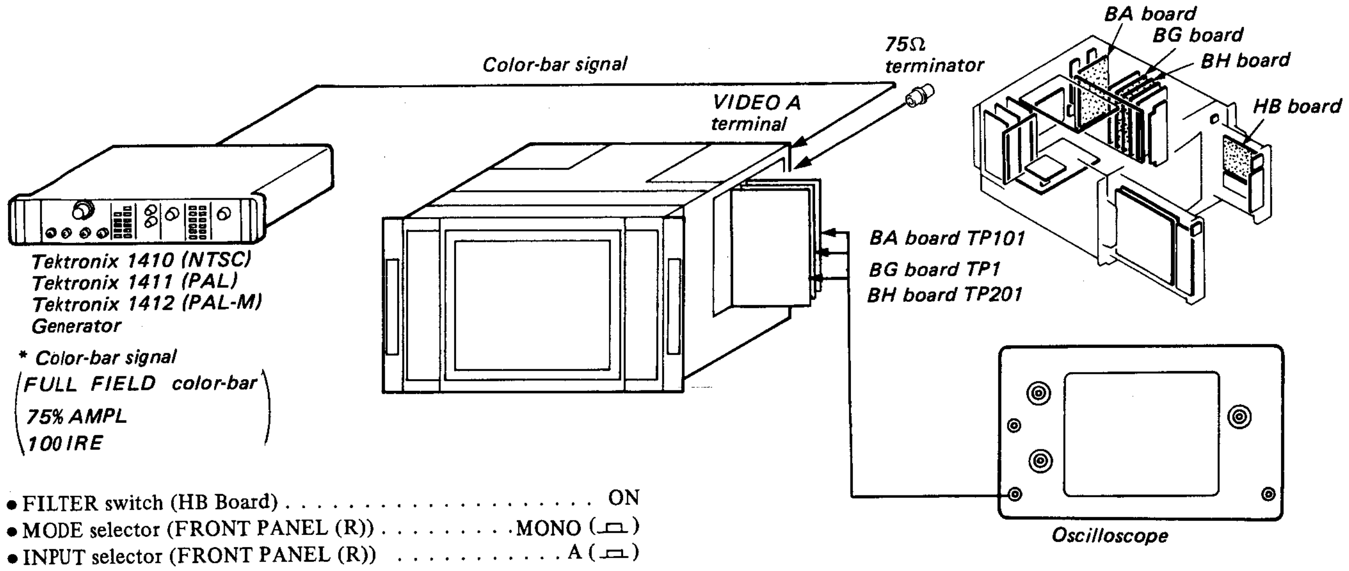

TP7
A
B
TP5
A=B

*Fig. 2-2*

**BJ board**


TP10 (GND)
TP5
RV5
TP7

## 3. EACH CHANNEL LEVEL ADJUSTMENT


Color-bar signal
75Ω terminator
VIDEO A terminal
BA board
BG board
BH board
HB board
BA board TP101
BG board TP1
BH board TP201
Tektronix 1410 (NTSC)
Tektronix 1411 (PAL)
Tektronix 1412 (PAL-M)
Generator
* Color-bar signal
FULL FIELD color-bar
75% AMPL
100 IRE
Oscilloscope

- FILTER switch (HB Board) . . . . . . . . . . . . . . . . . . . . ON
- MODE selector (FRONT PANEL (R)) . . . . . . . . . MONO (⎍)
- INPUT selector (FRONT PANEL (R)) . . . . . . . . . . . A (⎍)
- COLOR STANDARD button (SUB CONTROL PANEL) . . . . . . . . . . . . . . . PAL (⎍)

**BA board**

1. Input a color-bar signal to VIDEO A terminal to the set.
2. Connect an oscilloscope to the TP101 of BA board.
3. Adjust to 1.0Vp-p with RV101 of BA board as shown in Fig. 3-1.

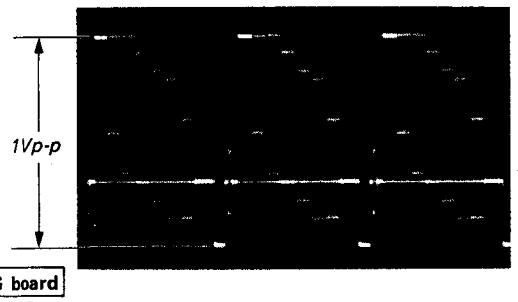


Fig. 3-1

**BG board**

4. Connect an oscilloscope to the TP1 of BG board.
5. Adjust to 1.0Vp-p with RV3 of BG board as shown in Fig. 3-1.
6. Connect an oscilloscope to the TP201 of BH board.

**HB board**

7. Adjust RV2 (SUB BRT) of HB board so that Ⓐ (black level) is 0V DC as shown in Fig. 3-2.
8. Adjust RV1 (SUB CONT) of HB board so that Ⓑ (100% white level) is -0.7V DC as shown in Fig. 3-2.

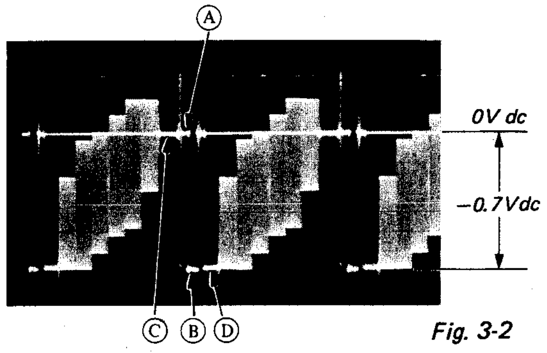


Fig. 3-2

Ⓐ . . . . . Black level
Ⓑ . . . . . 100% White level
Ⓒ . . . . . 0 IRE level
Ⓓ . . . . . 100 IRE level

**BH board**

9. S2 (BH Board) . . . . 0 IRE
   Adjust RV1 of BH board so that the Ⓒ (0 IRE level) coincides with Ⓐ (Black level) as shown in Fig. 3-3.
10. Adjust RV3 of BH board so that the Ⓓ (100 IRE level) coincides with Ⓑ (100% white level) as shown in Fig. 3-3.

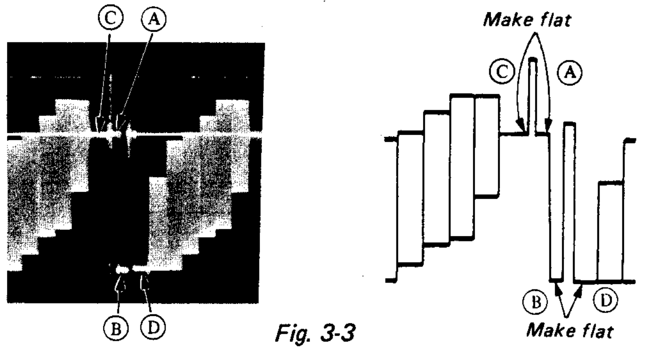


Fig. 3-3

**BH board**

11. S2 (BH Board ) . . . . . 7.5 IRE
    COLOR STANDARD button . . . . . . . . . . . . . . . . NTSC
    Input a NTSC color-bar signal (with 7.5% SET UP) to VIDEO A terminal to the set.
12. Adjust RV2 of BH board so that the Ⓔ (7.5 IRE level) coincides with Ⓐ (Black level) as shown in Fig. 3-4.
13. S2 (BH Board) . . . . . . . . . . . . . . . . . . . . . . . . 0 IRE

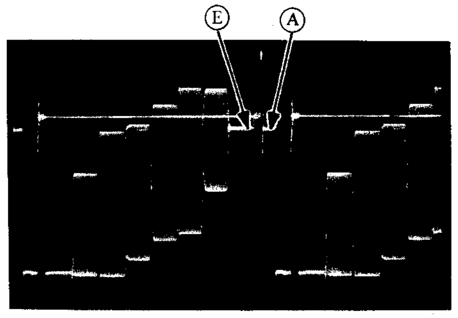
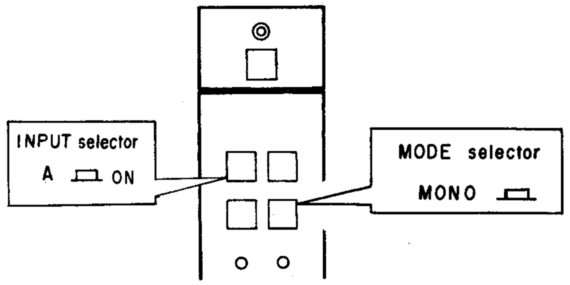
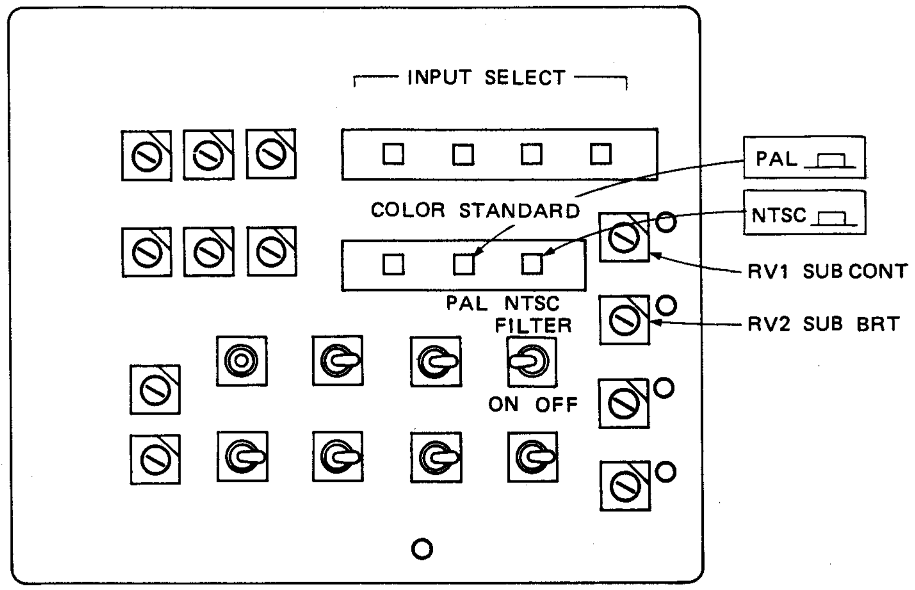


Fig. 3-4

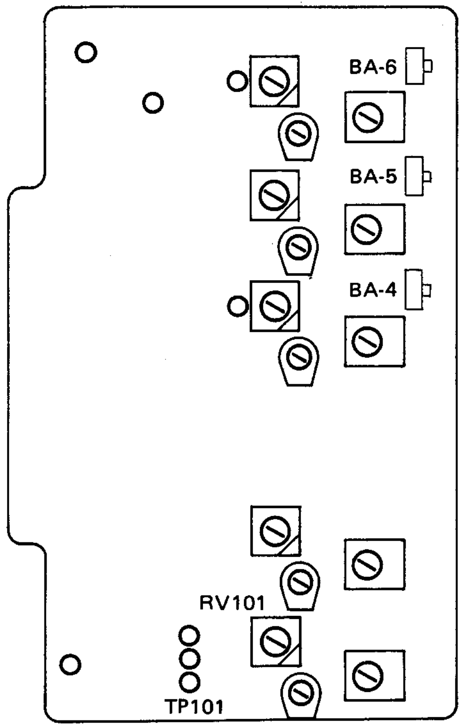
**FRONT PANEL (R)**


INPUT selector
A ⎍ ON
MODE selector
MONO ⎍

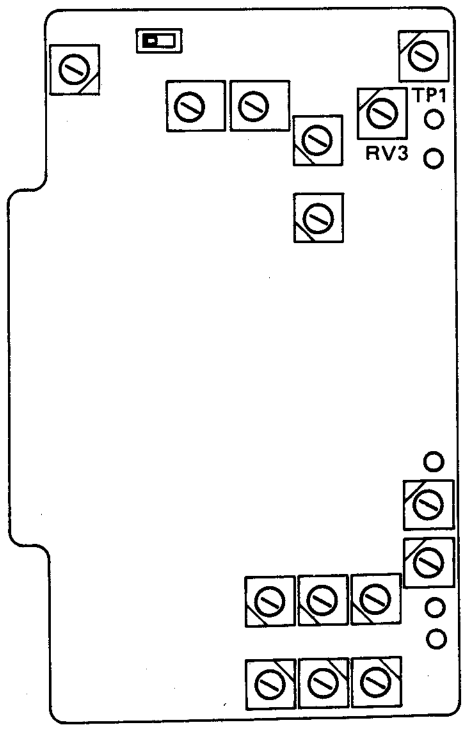
**HB board**


INPUT SELECT
COLOR STANDARD
PAL NTSC
FILTER
ON OFF
PAL ⎍
NTSC ⎍
RV1 SUB CONT
RV2 SUB BRT

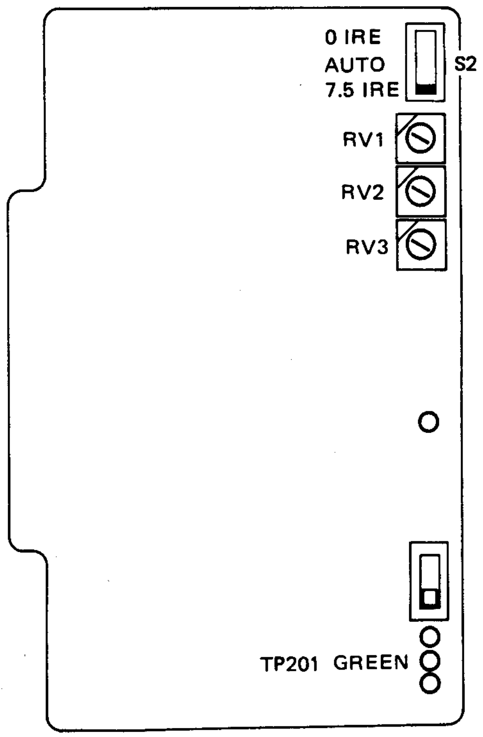
**BA board**


BA-6
BA-5
BA-4
RV101
TP101

**BG board**

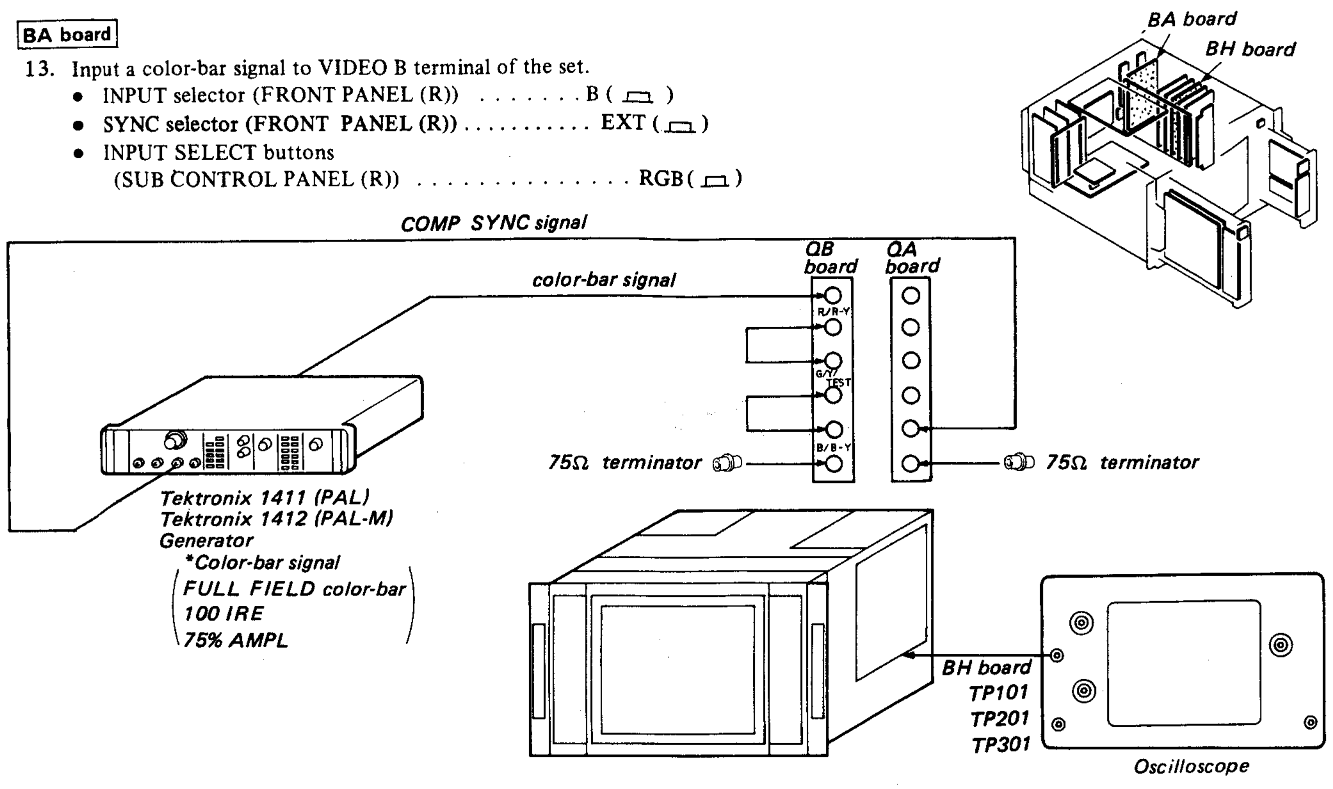


**BH board**


0 IRE
AUTO
7.5 IRE
S2
RV1
RV2
RV3
TP201 GREEN

**BA board**

13. Input a color-bar signal to VIDEO B terminal of the set.
   - INPUT selector (FRONT PANEL (R)) . . . . . . . B ( ▭ )
   - SYNC selector (FRONT PANEL (R)) . . . . . . . . . . . EXT ( ▭ )
   - INPUT SELECT buttons
     (SUB CONTROL PANEL (R)) . . . . . . . . . . . . . . RGB ( ▭ )


BA board
BH board
COMP SYNC signal
color-bar signal
QB board
QA board
R/R-Y
G/Y/TEST
B/B-Y
75Ω terminator
75Ω terminator
Tektronix 1411 (PAL)
Tektronix 1412 (PAL-M)
Generator
*Color-bar signal
FULL FIELD color-bar
100 IRE
75% AMPL
BH board
TP101
TP201
TP301
Oscilloscope

14. Connect an oscilloscope to TP101 of BH board.
15. Adjust RV401 of BA board so that the Ⓓ (100 IRE level) coincides with Ⓑ (100% white level) as shown in Fig. 3-5.
16. Connect an oscilloscope to TP201 of BH board.
17. Adjust RV501 of BA board so that the Ⓓ (100 IRE level) coincides with Ⓑ (100% white level) as shown in Fig. 3-5.
18. Connect an oscilloscope to TP101 of BH board.
19. Adjust RV601 of BA board so that the Ⓓ (100 IRE level) coincides with Ⓑ (100% white level) as shown in Fig. 3-5.

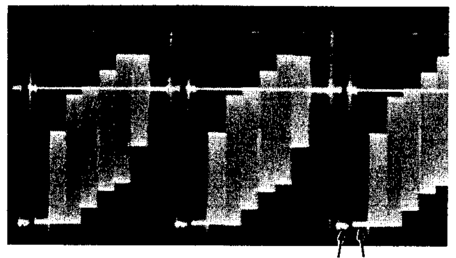
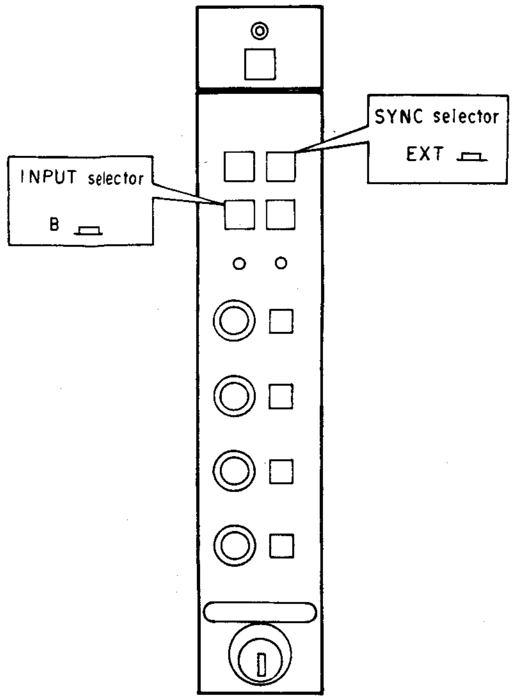
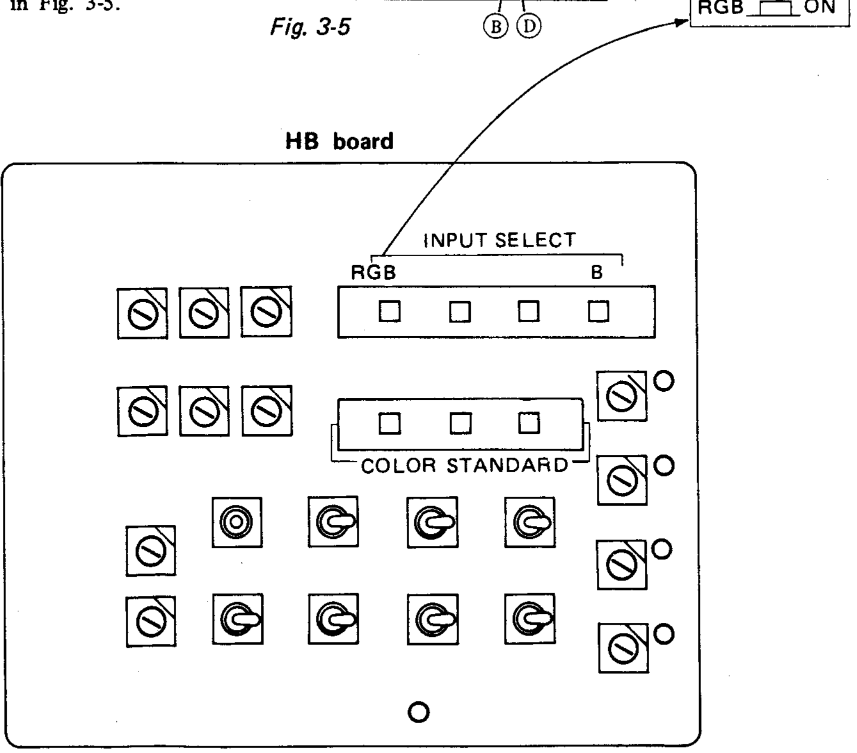


Fig. 3-5

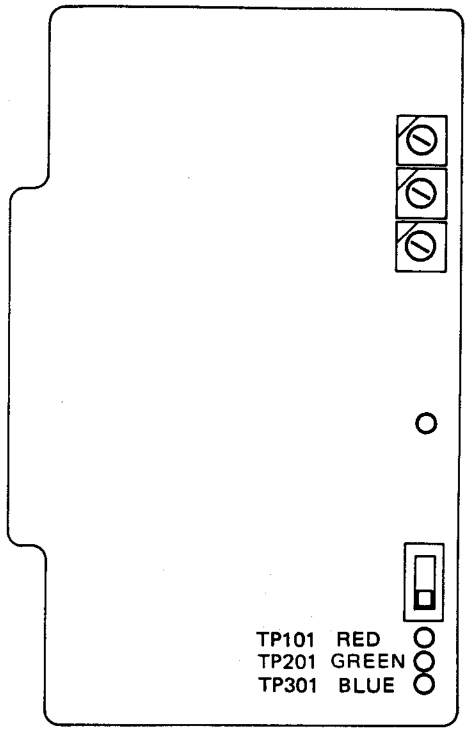
FRONT PANEL (R)


SYNC selector
EXT ▭
INPUT selector
B ▭

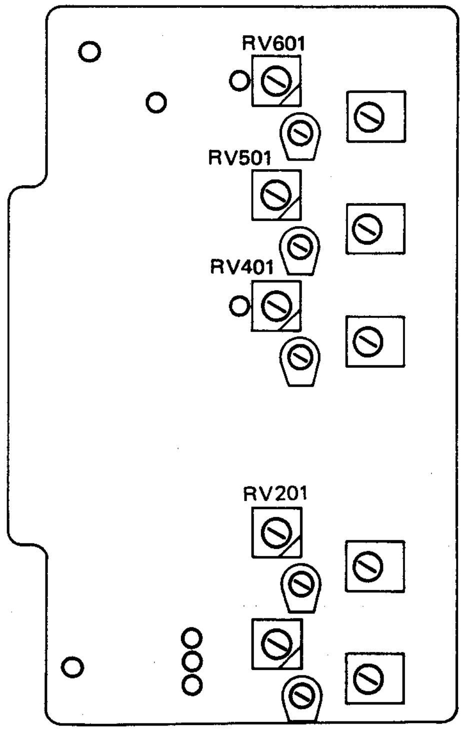
HB board


RGB ▭ ON
INPUT SELECT
RGB
B
COLOR STANDARD

BH board


TP101 RED
TP201 GREEN
TP301 BLUE

BA board


RV601
RV501
RV401
RV201

## 4. BA Board INPUT CIRCUIT FREQUENCY CHARACTERISTIC ADJUSTMENT

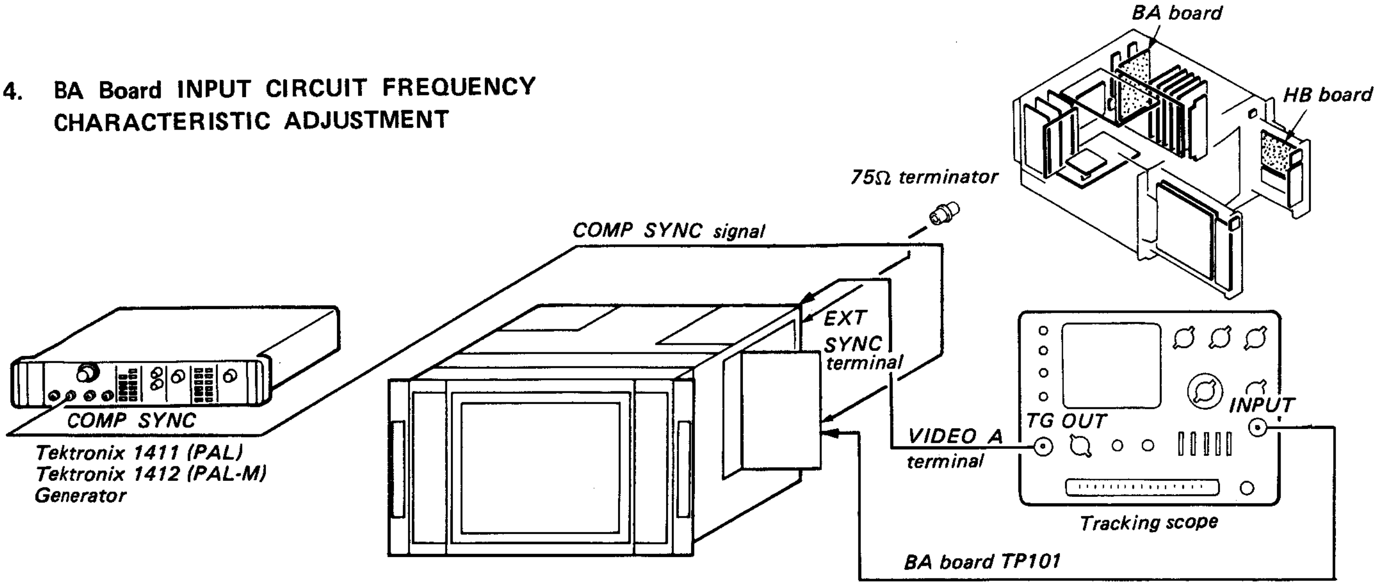

BA board
HB board
75Ω terminator
COMP SYNC signal
EXT SYNC terminal
COMP SYNC
Tektronix 1411 (PAL)
Tektronix 1412 (PAL-M)
Generator
VIDEO A terminal
TG OUT
INPUT
Tracking scope
BA board TP101

Fig. 4-1

1. Complete the connection as shown in Fig. 4-1.
   - INPUT selector . . . . . . . . . . . . . . . . . . . . . . A (▭)
   - SYNC selector . . . . . . . . . . . . . . . . . . . . EXT (▭)
   - CONTRAST control . . . . . . . . . . . . . . . . . . Minimum
   - BRIGHTNESS control . . . . . . . . . . . . . . . . . Minimum
2. Adjust CV101 so that minimum as shown in Fig. 4-2.

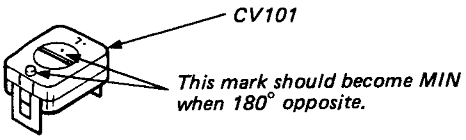

CV101
This mark should become MIN when 180° opposite.

Fig. 4-2

3. Adjust output waveform peak to 12MHz with CV102 of the BA board as shown in Fig. 4-3.

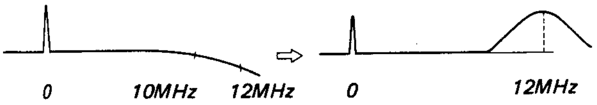


Fig. 4-3

4. Adjust CV101 of the BA board so that the output waveform becomes flat in a range of 0 to 10MHz as shown in Fig. 4-4.

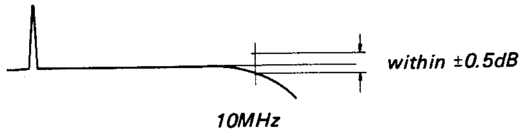
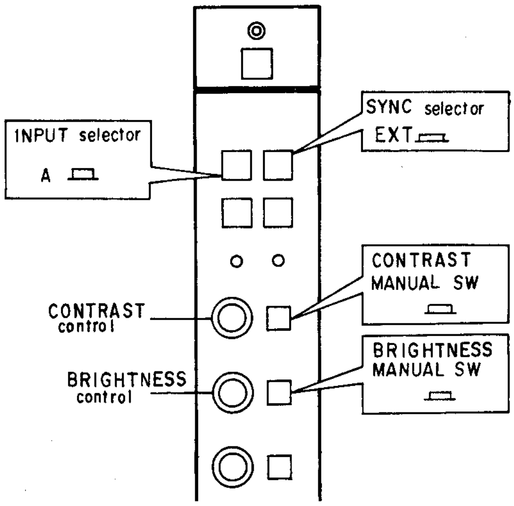
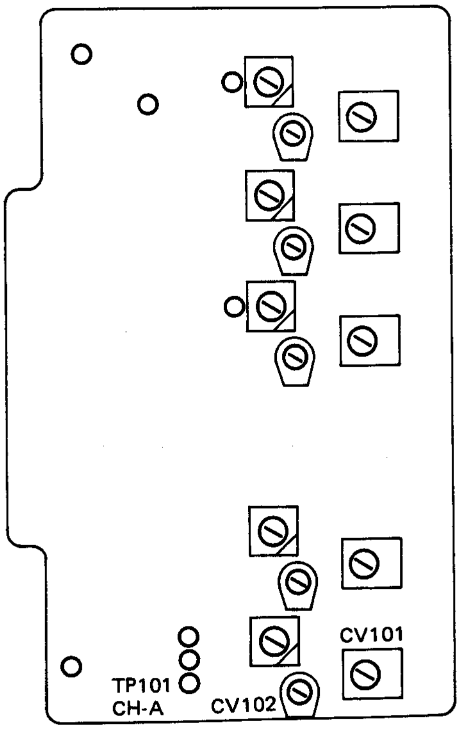


Fig. 4-4

**FRONT PANEL (R)**


INPUT selector
A ▭
SYNC selector
EXT ▭
CONTRAST MANUAL SW
▭
BRIGHTNESS MANUAL SW
▭
CONTRAST control
BRIGHTNESS control

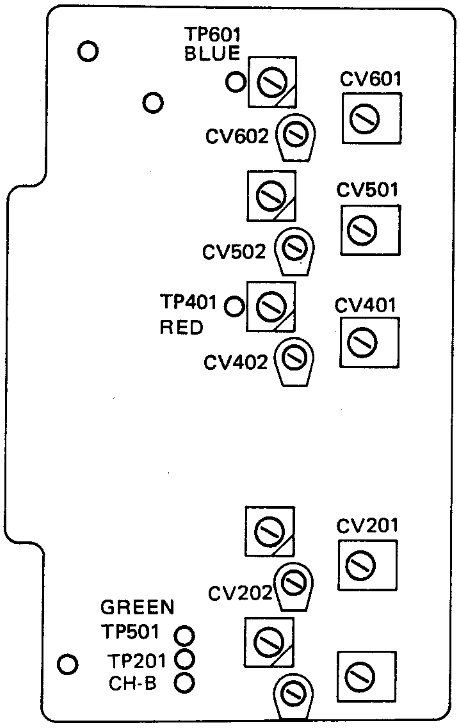
**BA board**


CV101
TP101
CH-A
CV102

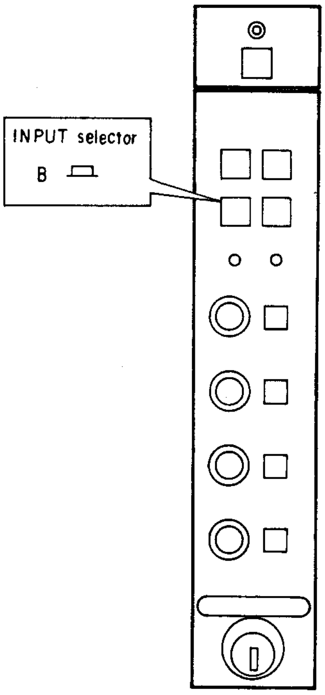
5. In the same way, perform the adjustment for B CH, under the following conditions.

| INPUT | INPUT selector (FRONT PANEL (A) | INPUT SELECT buttons (SUB CONTROL PANEL) | TP (BA board) | CV (BA board) |
|---|---|---|---|---|
| B | B | B | TP201 | CV201, 202 |
| R/R-Y | B | RGB | TP401 | CV401, 402 |
| G/Y/TEST | B | RGB | TP501 | CV501, 502 |
| B/B-Y | B | RGB | TP601 | CV601, 602 |

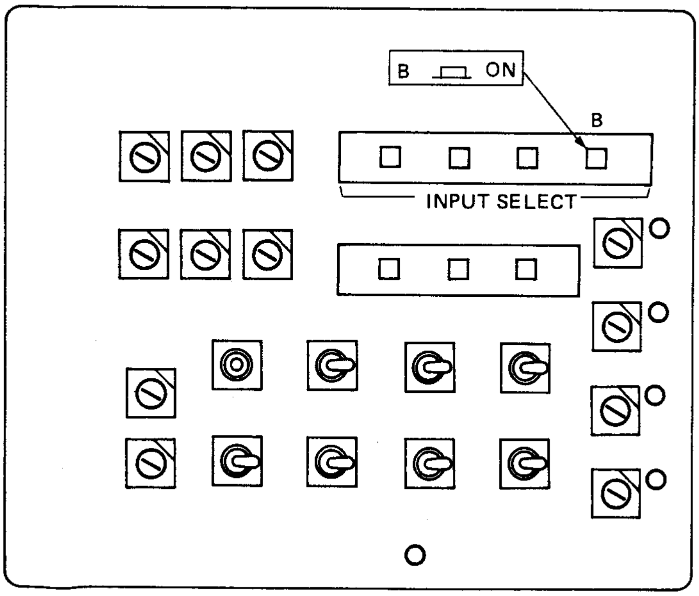
**BA board**


TP601
BLUE
CV601
CV602
CV501
CV502
TP401
RED
CV401
CV402
CV201
CV202
GREEN
TP501
TP201
CH-B

**FRONT PANEL (R)**


INPUT selector
B

**HB board**


B
ON
B
INPUT SELECT

## 5. BG BOARD FREQUENCY CHARACTERISTIC ADJUSTMENT

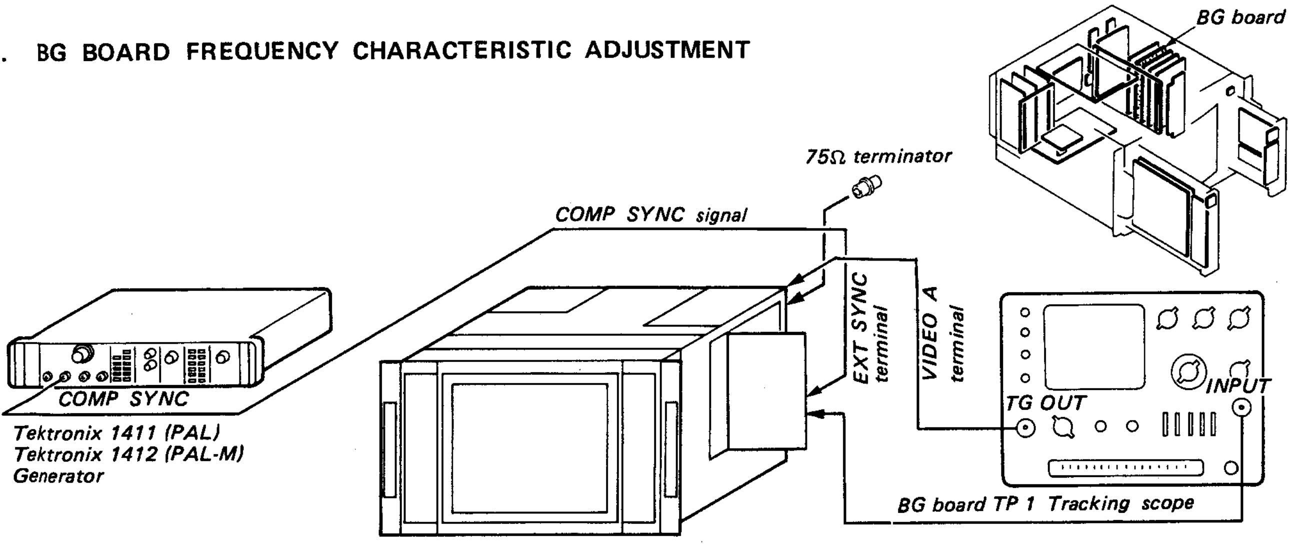

BG board
75Ω terminator
COMP SYNC signal
EXT SYNC terminal
VIDEO A terminal
COMP SYNC
Tektronix 1411 (PAL)
Tektronix 1412 (PAL-M)
Generator
TG OUT
INPUT
BG board TP 1 Tracking scope

*Fig. 5-1*

1. Complete the connections as shown in Fig. 5-1.
   - INPUT selector (FRONT PANEL (R)) . . . . . . . A ( ▭ )
   - SYNC selector (FRONT PANEL (R)) . . . . . . EXT ( ▭ )
   - CONTRAST control . . . . . . . . . . . . . . . . . . Minimum
   - BRIGHTNESS control . . . . . . . . . . . . . . . . . Minimum
   - S1 (BG Board) . . . . . . . . . . . . 4.5MHz (*4.5* ▣ *6.5*)
2. Adjust RV1, CV2 and CV3 of the BG board so that the output waveform becomes flat in a range of 0 to 10MHz as shown in Fig. 5-2. (within 0±0.5dB)

   *Waveform movement by RV1, CV2, CV3

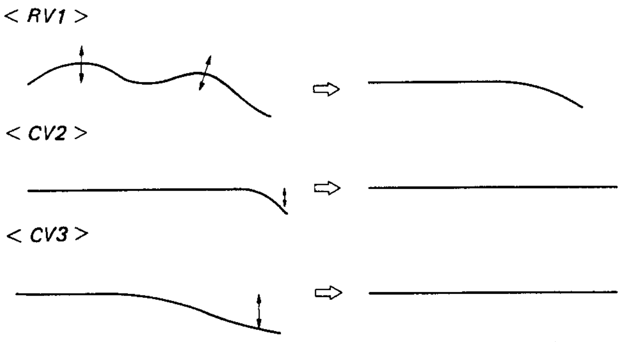


*Fig. 5-2*

3. Adjust with RV2 (BG board) to the position in which the APT (Fig. 5-3.) begins to become effective.

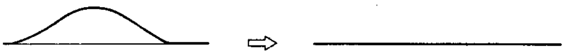
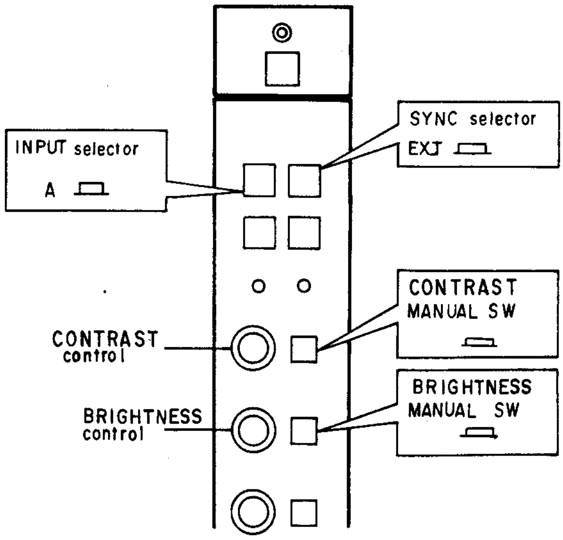
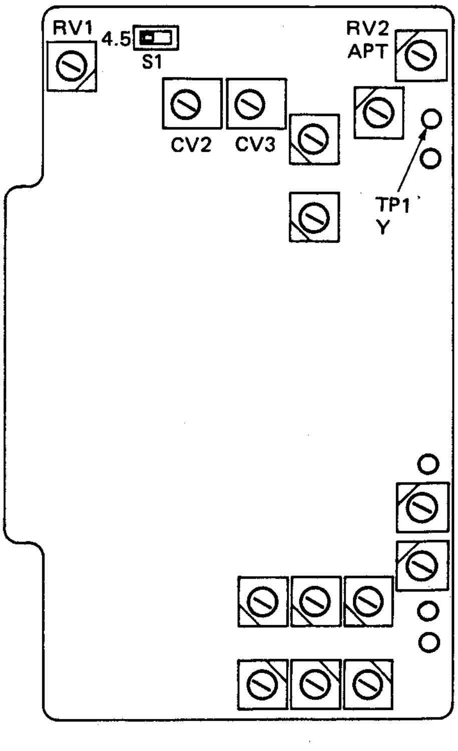


*Fig. 5-3*

**FRONT PANEL (R)**


INPUT selector
A ▭
SYNC selector
EXT ▭
CONTRAST MANUAL SW
▭
CONTRAST control
BRIGHTNESS control
BRIGHTNESS MANUAL SW
▭

**BG board**


RV1
4.5
S1
RV2
APT
CV2
CV3
TP1
Y

## 6. COMPONENT INPUT LEVEL ADJUSTMENT

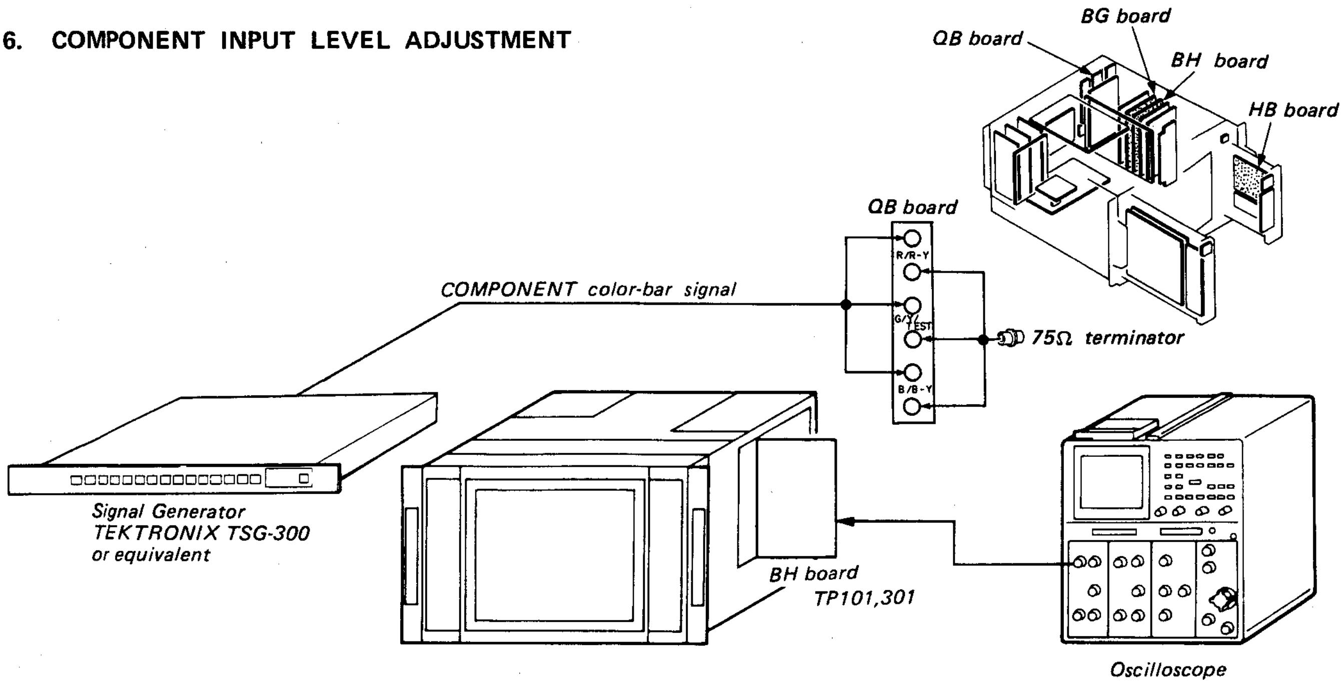
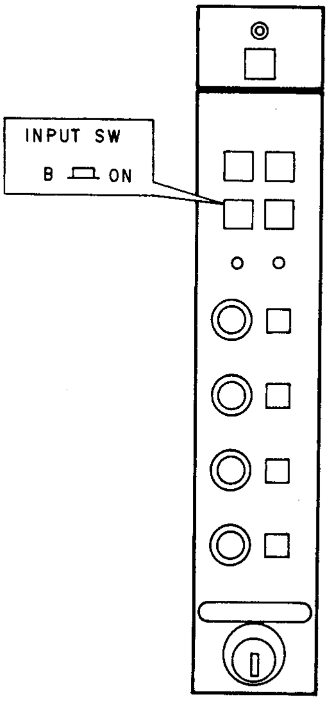

QB board
BG board
BH board
HB board
QB board
R/R-Y
G/Y/TEST
B/B-Y
COMPONENT color-bar signal
75Ω terminator
Signal Generator
TEKTRONIX TSG-300
or equivalent
BH board
TP101,301
Oscilloscope

*Fig. 6-1*

1. Complete the connections as shown in Fig. 6-1.
   - INPUT selector . . . . . . . . . B (FRONT PANEL (R))
   - INPUT SELECT buttons (RIGHT SIDE DRAWER) (HB board) . . . . . . . . . . . . COMPONENT
2. Connect an oscilloscope to the TP-101 of BH board.
3. Adjust RV21 of BG board so that the output waveform becomes flat. (Fig. 6-2)

**FRONT PANEL (R)**


INPUT SW
B ⊓ ON

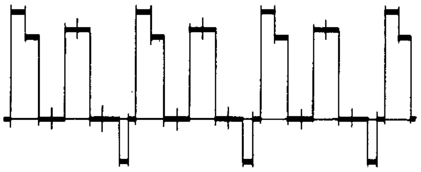


*Fig. 6-2*

4. Connect an oscilloscope to the TP301 of BH board.
5. Adjust RV22 of BG board so that the input waveform becomes flat. (Fig. 6-3)

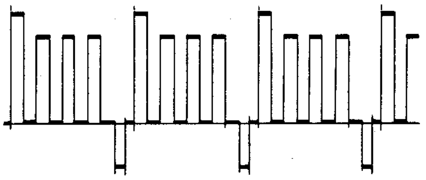
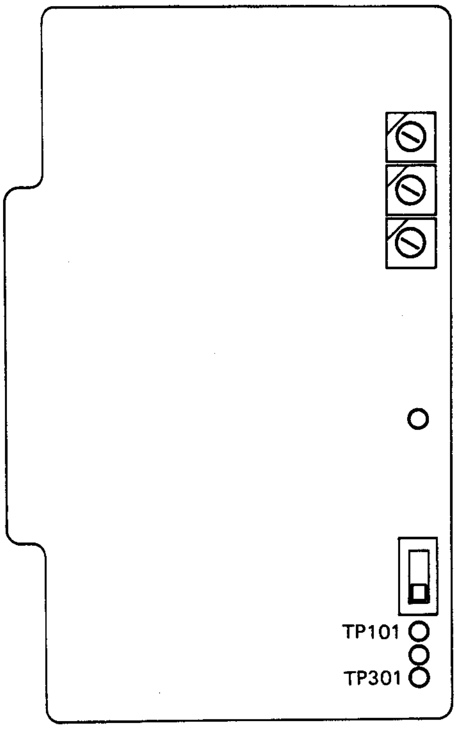
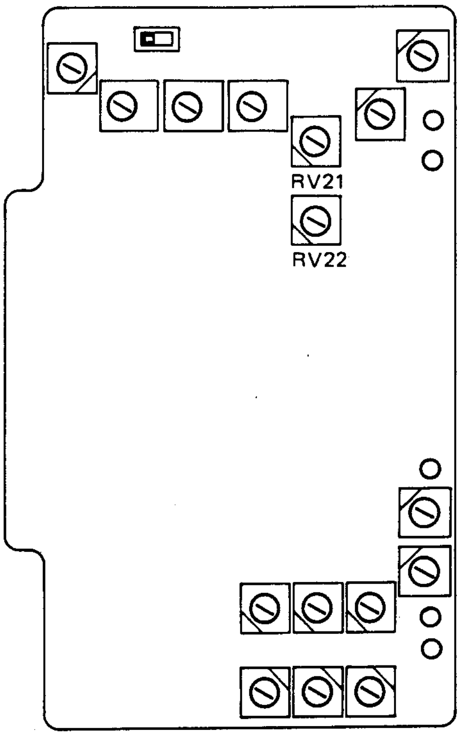


*Fig. 6-3*

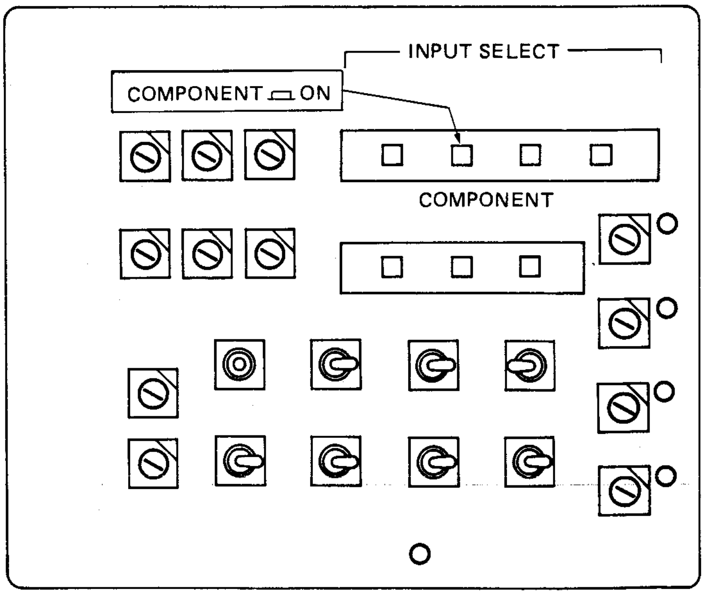
**BH board**


TP101
TP301

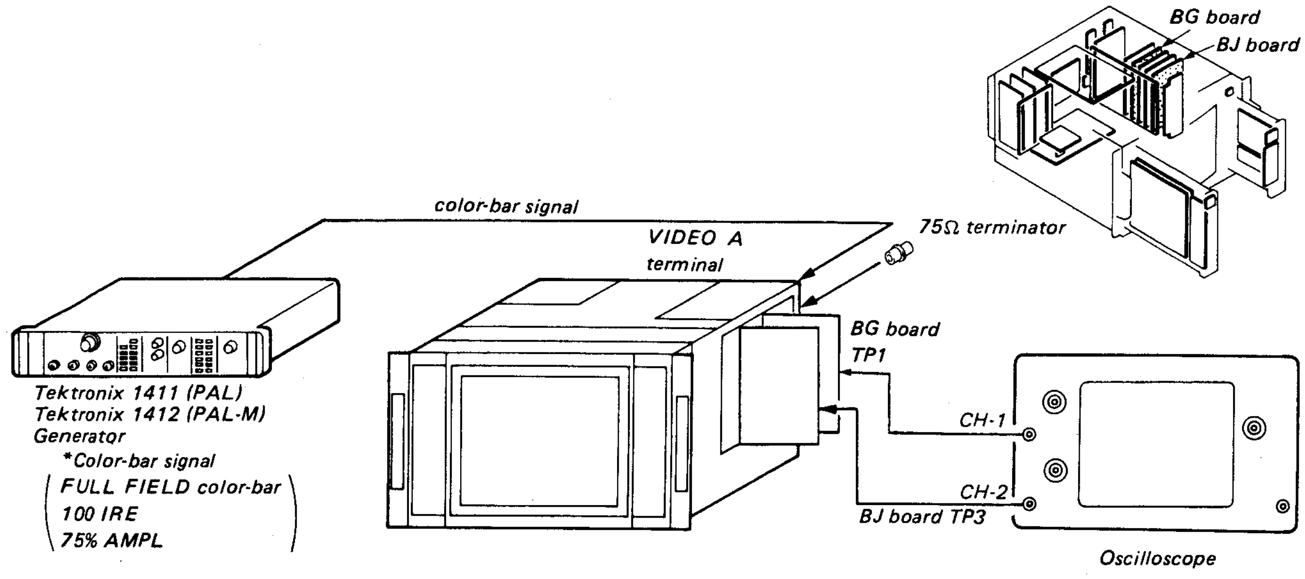
**BG board**



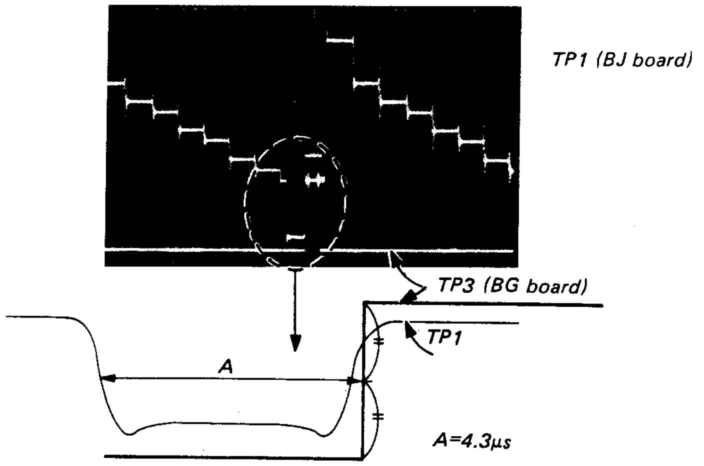
**RIGHT SIDE DRAWER (HB board)**


INPUT SELECT
COMPONENT ▭ ON
COMPONENT

## 7. BJ Board BURST GATE PULSE ADJUSTMENT


BG board
BJ board
color-bar signal
VIDEO A
terminal
75Ω terminator
BG board
TP1
CH-1
CH-2
BJ board TP3
Oscilloscope
Tektronix 1411 (PAL)
Tektronix 1412 (PAL-M)
Generator
*Color-bar signal
FULL FIELD color-bar
100 IRE
75% AMPL

1. Input a color-bar signal to the VIDEO A terminal of the set.
2. Connect an oscilloscope (CH-1 probe) to the TP1 of BG board and connect an oscilloscope (CH-2 probe) to the TP3 of BJ board.
3. Adjust RV8 of BJ board so that the A width is 4.3µs as shown in Fig 7-1.


TP1 (BJ board)
TP3 (BG board)
TP1
A
A=4.3µs

* *Adjust(A), from SYNC fall to B.G.P. (BURST GATE PULSE) rise, to 4.3µs.*

*Fig. 7-1*

4. Adjust RV4 of BJ board so that the burst gate pulse width is 3.9µs as shown in Fig. 7-2.

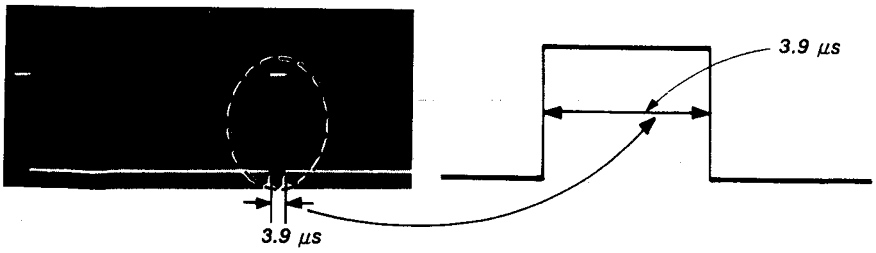
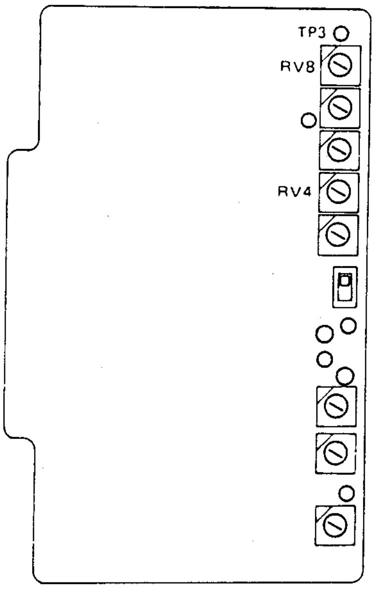
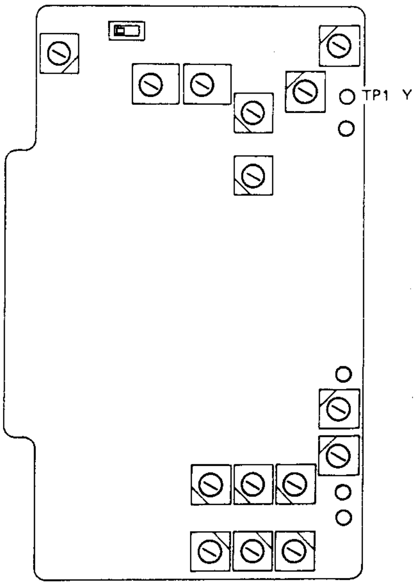


*Fig. 7-2*

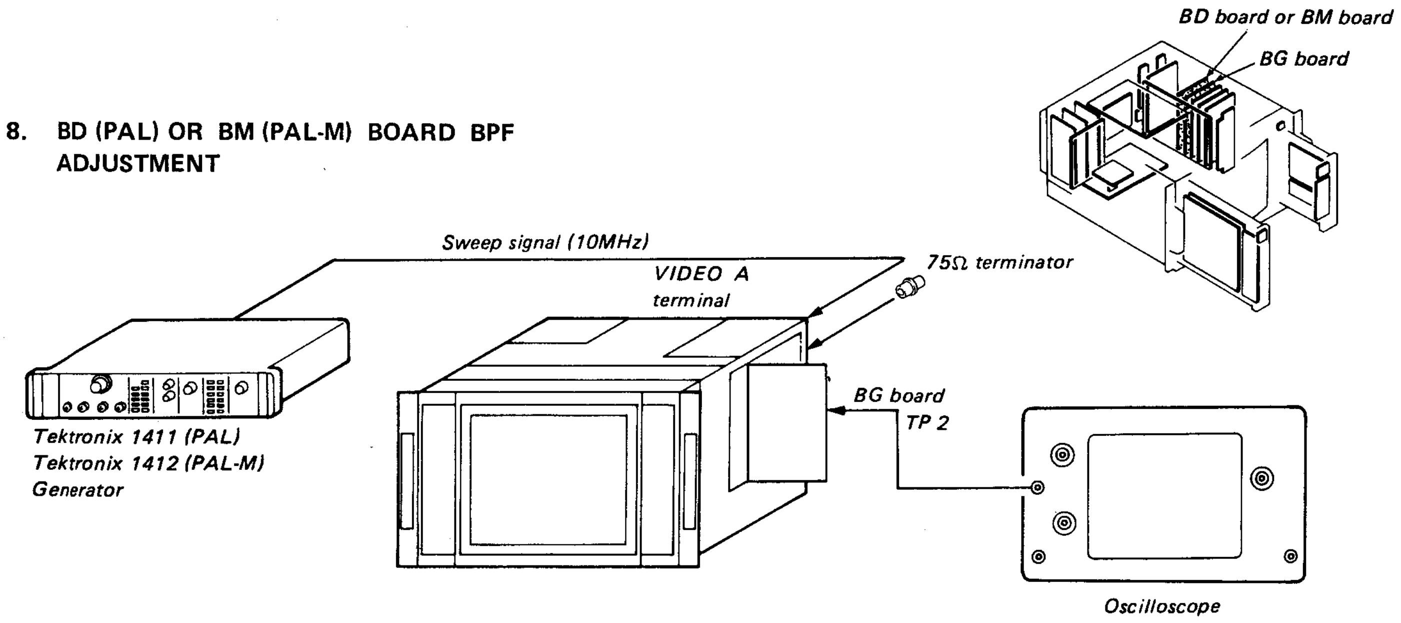
**BJ board**



**BG board**



## 8. BD (PAL) OR BM (PAL-M) BOARD BPF ADJUSTMENT


BD board or BM board
BG board
Sweep signal (10MHz)
VIDEO A terminal
75Ω terminator
BG board
TP 2
Tektronix 1411 (PAL)
Tektronix 1412 (PAL-M)
Generator
Oscilloscope

* Set the PAL switch of the BVM-1410P or 1410PM to the S position.

1. Input SWEEP signal (10MHz) to the VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP2 on the BG board.
3. Make the V/div of oscilloscope into VARIABLE, and match the upper section of waveform to 7 div as shown in Fig. 8-1.

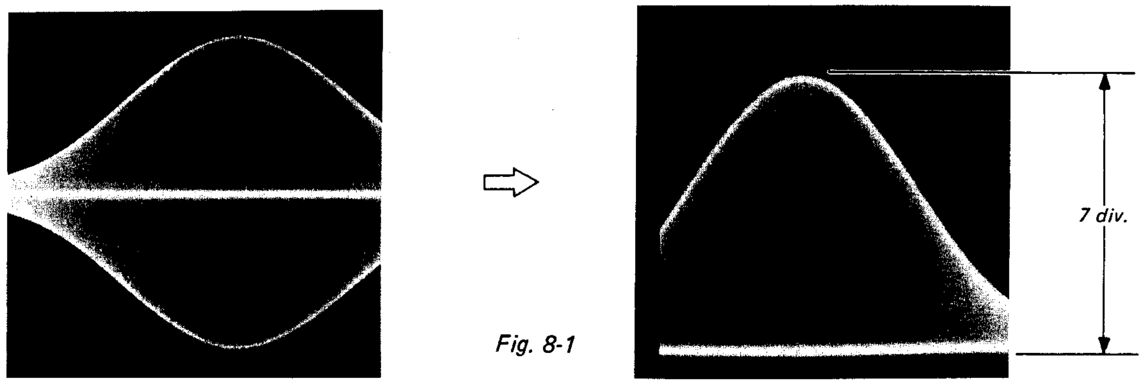


Fig. 8-1

4. Adjust L3 on the BD board so that A is equal to B as shown in Fig. 8-2.

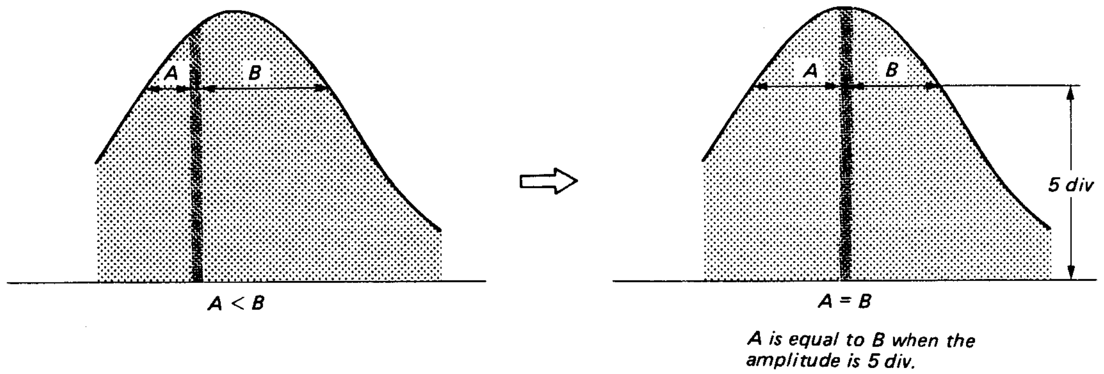
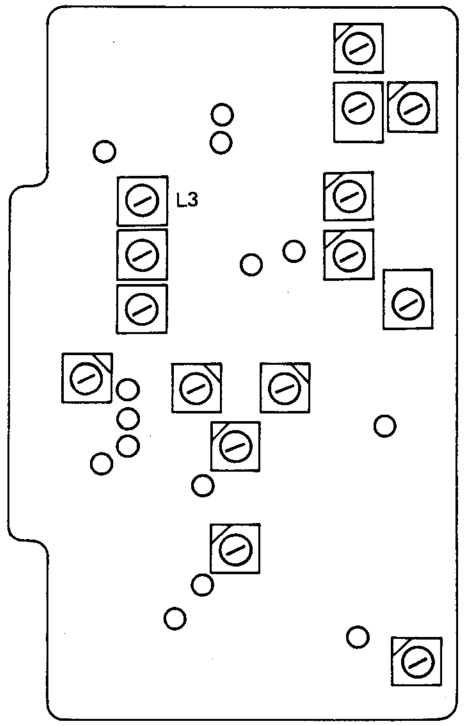
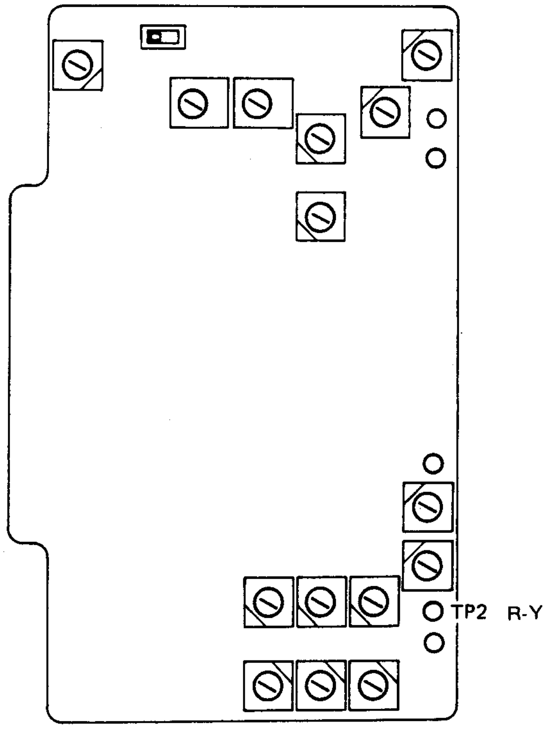

A
B
A < B
A
B
5 div
A = B
A is equal to B when the amplitude is 5 div.

Fig. 8-2

**BD board or BM board**



**BG board**



## 9. BD (PAL) OR BM (PAL-M) BOARD PHASE SHIFT ADJUSTMENT

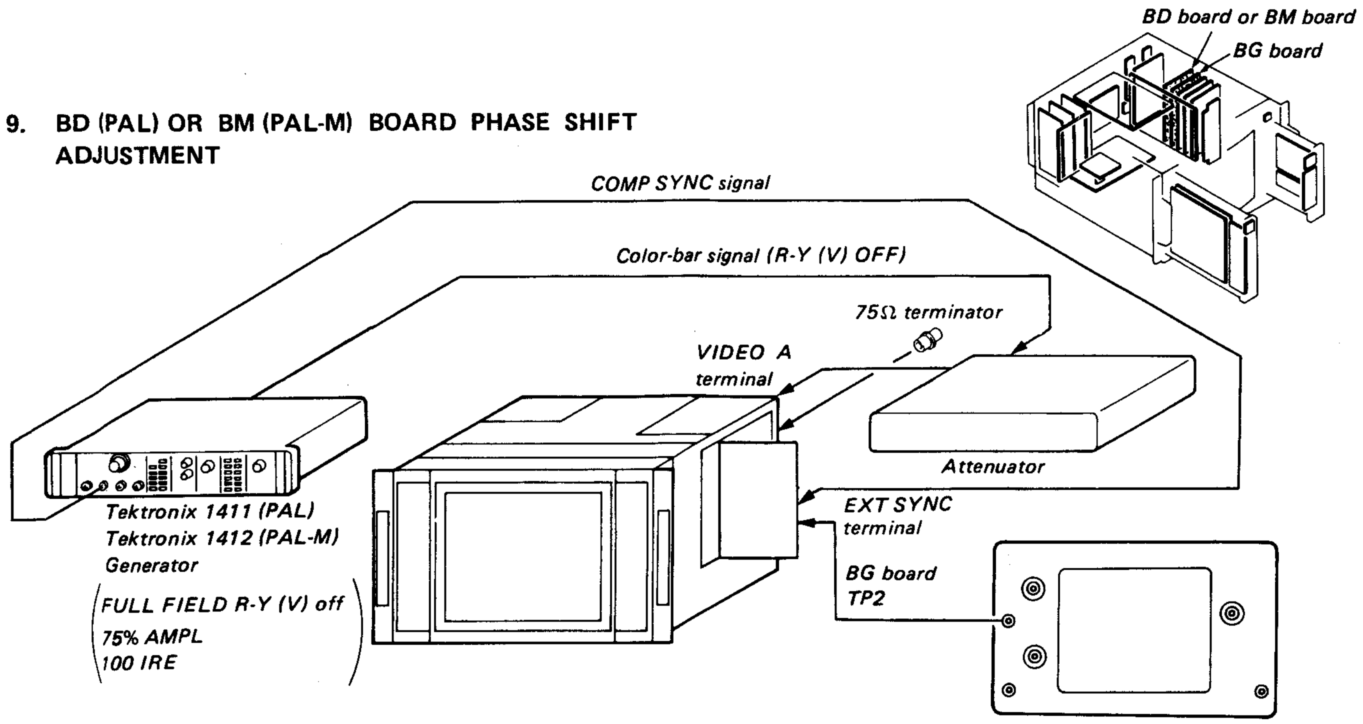

BD board or BM board
BG board
COMP SYNC signal
Color-bar signal (R-Y (V) OFF)
75Ω terminator
VIDEO A terminal
Attenuator
EXT SYNC terminal
BG board TP2
Tektronix 1411 (PAL)
Tektronix 1412 (PAL-M)
Generator
FULL FIELD R-Y (V) off
75% AMPL
100 IRE
Oscilloscope

Fig. 9-1

* Set the PAL switch of the BVM-1410P or 1410PM to the S position and RV2, CV1, CV2 on the BD or BM board to mechanical midposition.

1. Complete the connection as shown in Fig. 9-1.
   - INPUT selector (FRONT PANEL (R)) . . . A ( ⊓ )
   - SYNC selector (FRONT PANEL (R)) . . . EXT ( ⊓ )
2. Connect an oscilloscope to the TP2 on the BG board.
3. Make the waveform flat with the PHASE control of front panel (R) as shown in Fig. 9-2.

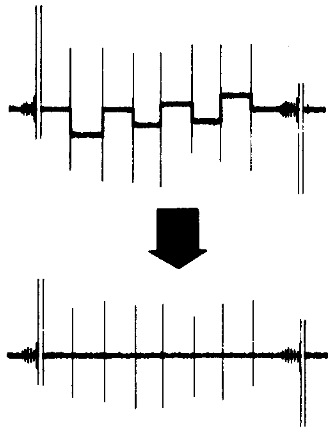
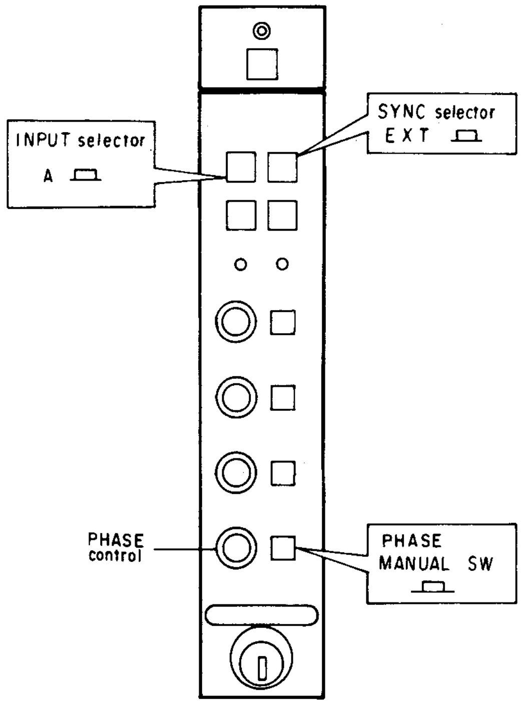


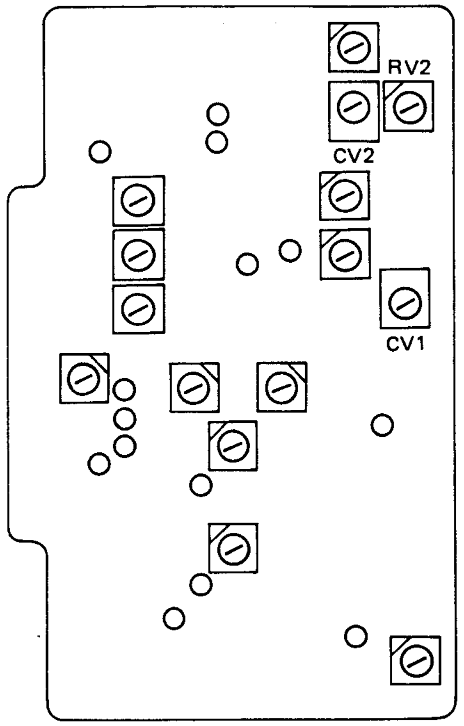
Fig. 9-2

4. Attenuate the signal by 10dB by using attenuator.
5. Adjust RV2 on the BD or BM board so that the output waveform becomes flat as shown in Fig. 9-2.
6. Restore the attenuator to 0dB.
7. Repeat the steps 3 to 5.

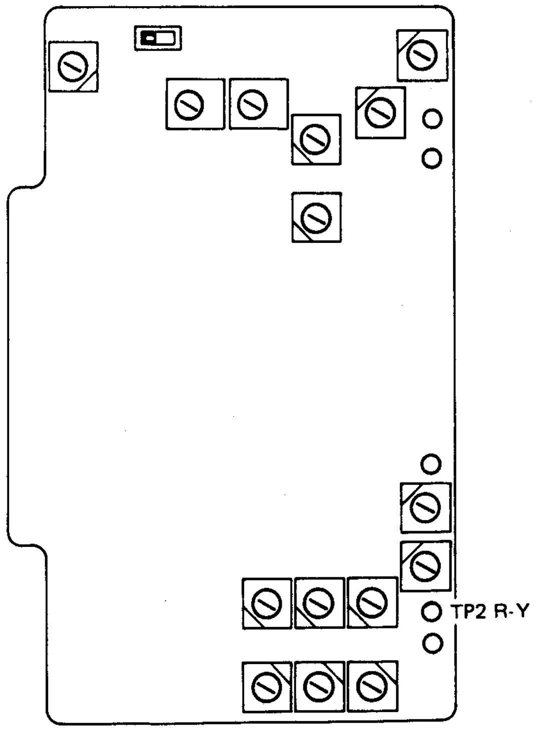
**FRONT PANEL (R)**


SYNC selector
EXT ⊓
INPUT selector
A ⊓
PHASE control
PHASE MANUAL SW
⊓

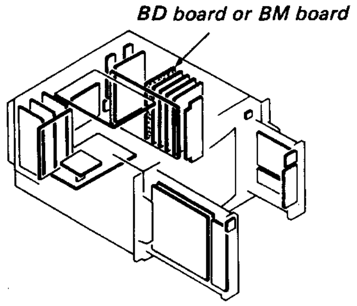
**BD board or BM board**

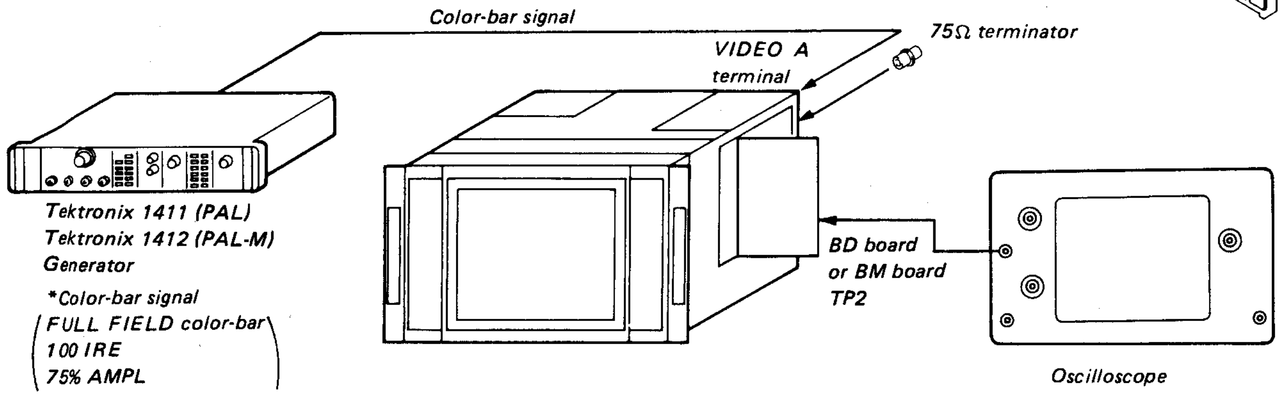


**BG board**



## 10. BD BOARD 4.43MHz (PAL) or BM BOARD 3.58MHz (PAL-M) fo ADJUSTMENT


BD board or BM board


Color-bar signal
VIDEO A terminal
75Ω terminator
Tektronix 1411 (PAL)
Tektronix 1412 (PAL-M)
Generator
*Color-bar signal
FULL FIELD color-bar
100 IRE
75% AMPL
BD board or BM board TP2
Oscilloscope

1. Input color-bar signal to the VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP2 of BD or BM board.
3. Short-circuit between TP11, 12 of BD or BM board with a jumper wire.
4. Adjust CV2 of BD or BM board so that the output waveform is shifted slowly as shown in Fig. 10-1.
5. Turn off the power of this monitor, and disconnect TP11, 12 of BD or BM board.

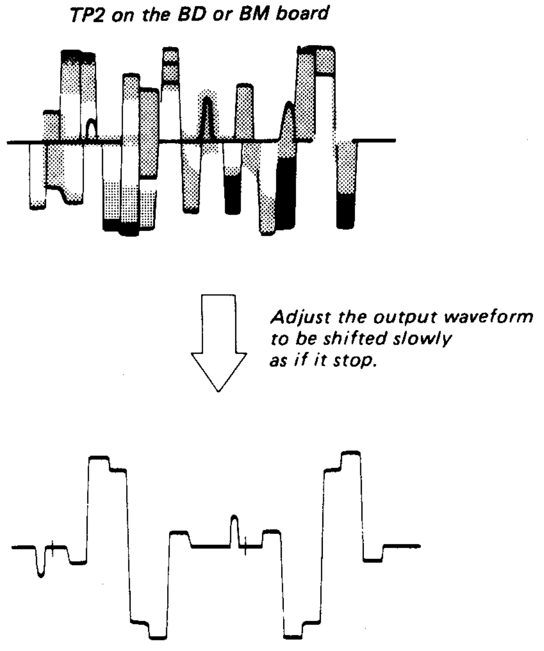
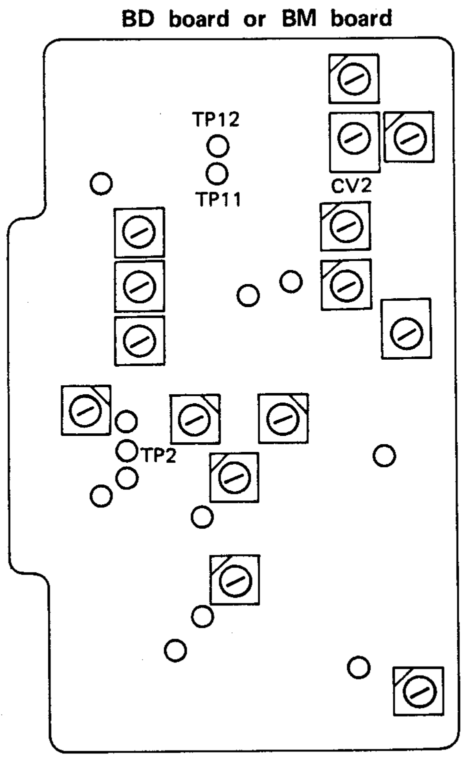
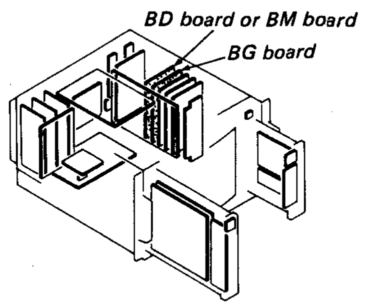

TP2 on the BD or BM board
Adjust the output waveform to be shifted slowly as if it stop.

Fig. 10-1


BD board or BM board
TP12
TP11
CV2
TP2

## 11. BD BOARD (PAL) or BM BOARD (PAL-M) COLOR DIFFERENCE PHASE ADJUSTMENT


BD board or BM board
BG board

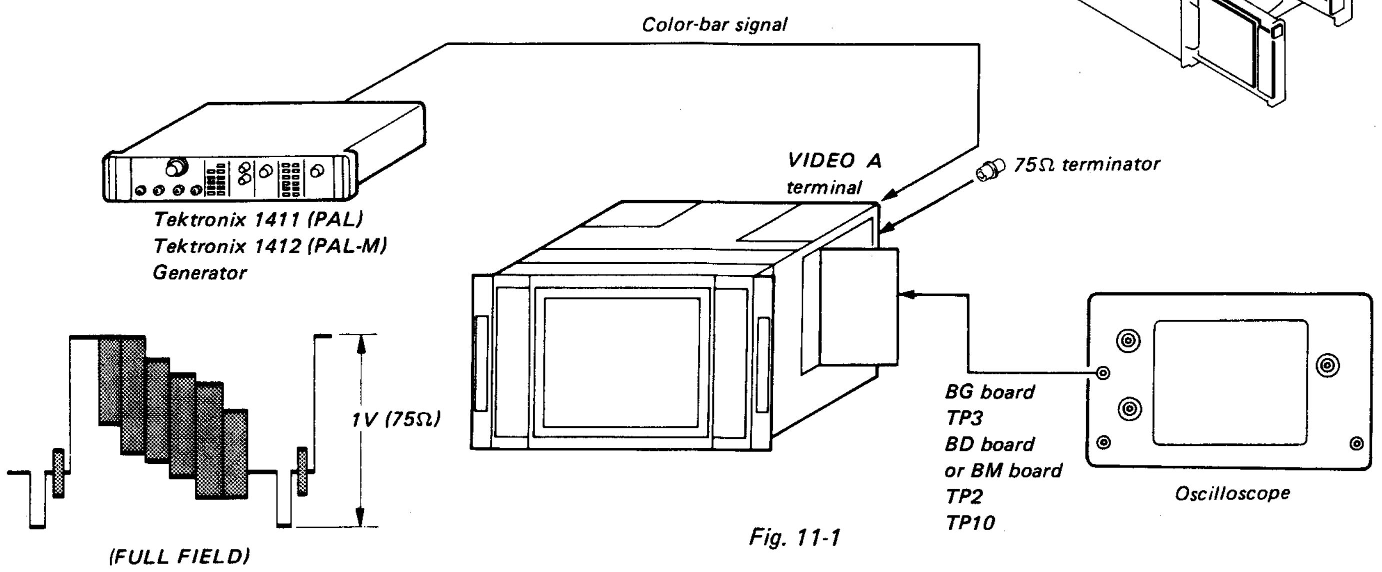

Color-bar signal
VIDEO A
terminal
75Ω terminator
Tektronix 1411 (PAL)
Tektronix 1412 (PAL-M)
Generator
1V (75Ω)
(FULL FIELD)
BG board
TP3
BD board
or BM board
TP2
TP10
Oscilloscope

Fig. 11-1

1. Complete the connections as shown in Fig. 11-1.
2. Turn on the power of this monitor. Set the INPUT switch to the A position, the SYNC switch to the INT position, and the PAL switch to the S position.

**B-Y System Adjustment**

3. Connect the oscilloscope probe to TP3 on the BG board, and turn off the U (B-Y) signal of the signal generator.
4. Set the oscilloscope sensitivity to 20mV/DIV, and adjust RV8 on the BD or BM board so that the output waveform is flat. (See Fig. 11-2.)

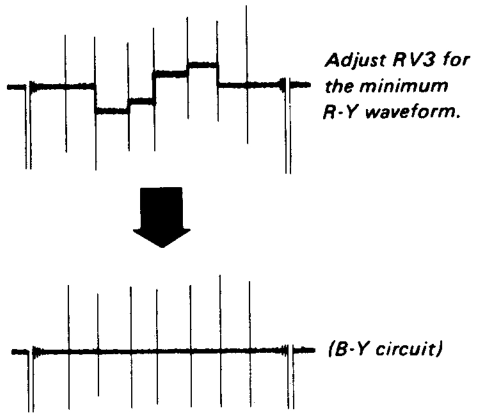

Adjust RV3 for
the minimum
R-Y waveform.
(B-Y circuit)

Fig. 11-2

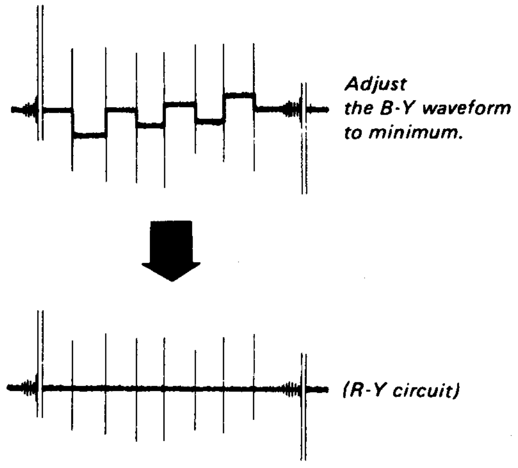

Adjust
the B-Y waveform
to minimum.
(R-Y circuit)

Fig. 11-3

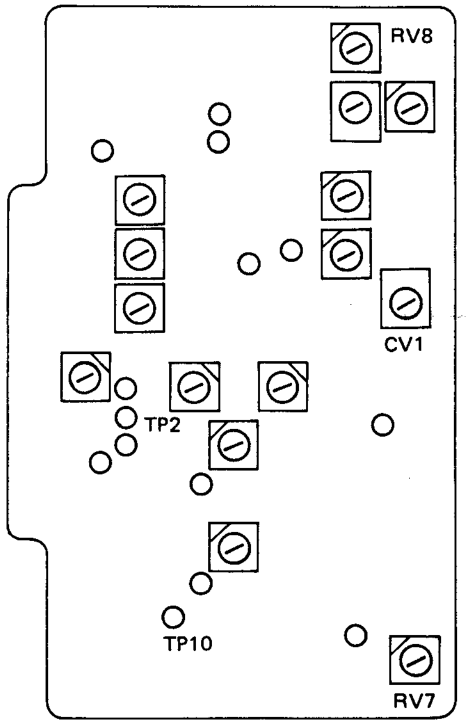
**Quad Adjustment**

5. Connect the oscilloscope probe to TP2 on the BD or BM board. Turn on the U signal of the signal generator, and turn off the V (R-Y) signal. Then adjust CV1 on the BD or BM board so that the output waveform is flat. (See Fig. 11-3.)
6. Repeat the steps 3 to 6.

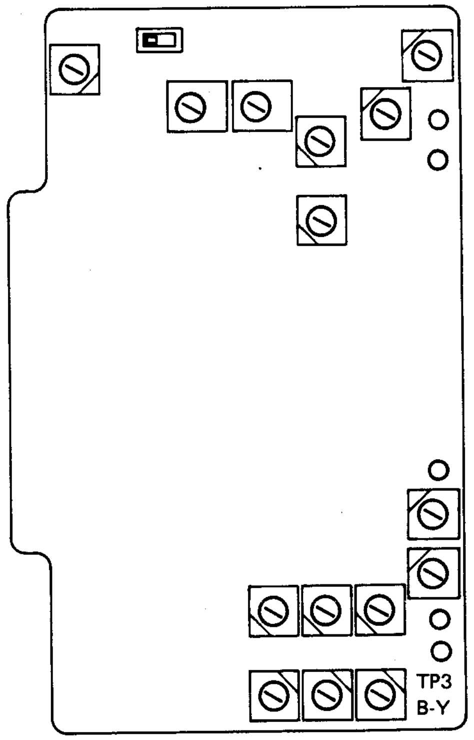
**PAL-D Phase Adjustment**

7. Set the PAL switch to the D position and turn on the V signal of the signal generator, and turn off U signal.
8. Connect the oscilloscope probe to TP10 on the BD or BM board.
9. Adjust RV7 on the BD board so that the output waveform is flat. (See Fig. 11-2.)
10. Finally, perform the adjustments of 3 and 4 by directly mounting the BD or BM board to the set, without using the extension board.

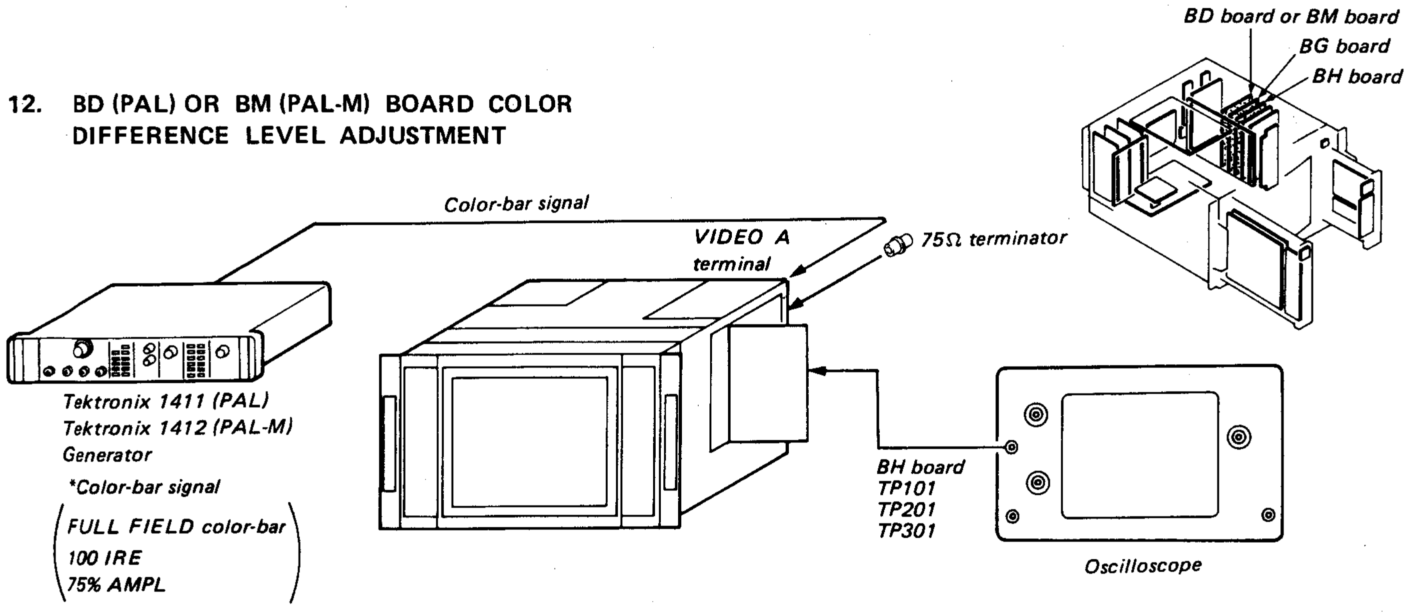
**BD board or BM board**


RV8
CV1
TP2
TP10
RV7

**BG Board**

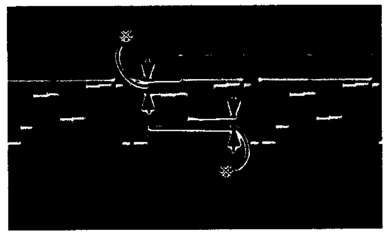


## 12. BD (PAL) OR BM (PAL-M) BOARD COLOR DIFFERENCE LEVEL ADJUSTMENT


BD board or BM board
BG board
BH board
Color-bar signal
VIDEO A terminal
75Ω terminator
Tektronix 1411 (PAL)
Tektronix 1412 (PAL-M)
Generator
*Color-bar signal
FULL FIELD color-bar
100 IRE
75% AMPL
BH board
TP101
TP201
TP301
Oscilloscope

* Set the PAL switch of the BVM-1410P or 1410PM to the S position.

1. Input color-bar signal to the VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP101 of BH board.
3. Adjust RV3 of BD or BM board so that the level with ✱ is flat as shown in Fig. 12-1.

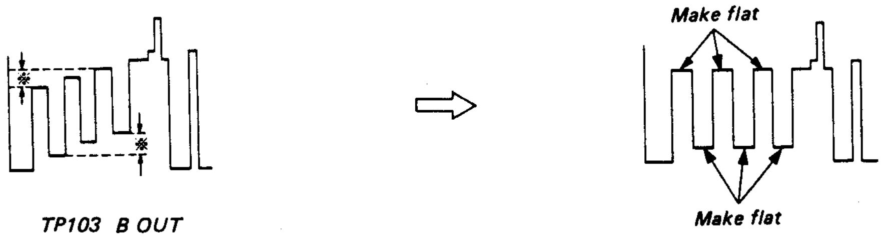


* *Adjust the levels with ✱ to be flat respectively using RV3 of BD or BM board.*

*TP101 R OUT*

*Fig. 12-1*

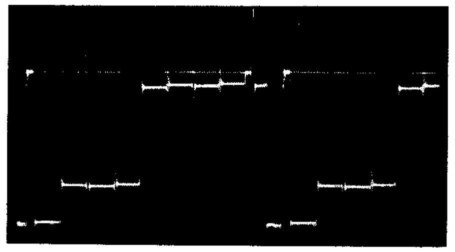
4. Connect an oscilloscope to the TP301 of BH board.
5. Adjust RV4 of BD or BM board so that the output waveform as shown in Fig. 12-2.


Make flat
Make flat
✱
✱

*TP103 B OUT*

*Fig. 12-2*

6. Connect an oscilloscope to the TP201 of BH board.
7. Adjust RV4 and RV5 of BG board so that the INPUT waveform becomes flat as shown in Fig. 12-3.



*TP201 G OUT*

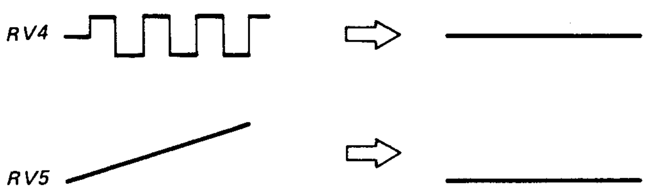
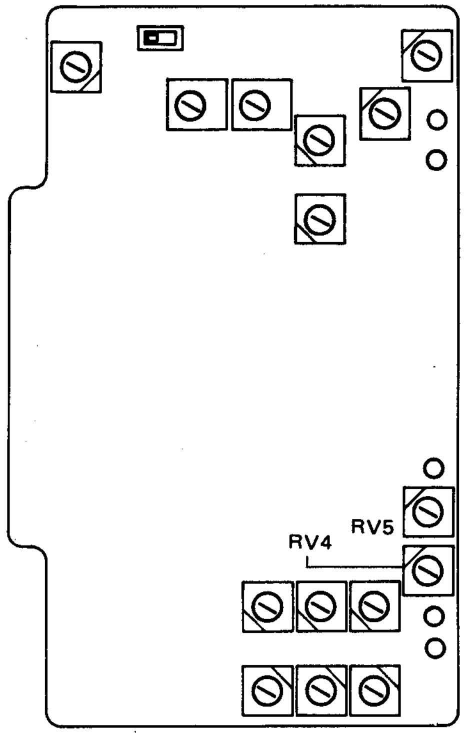
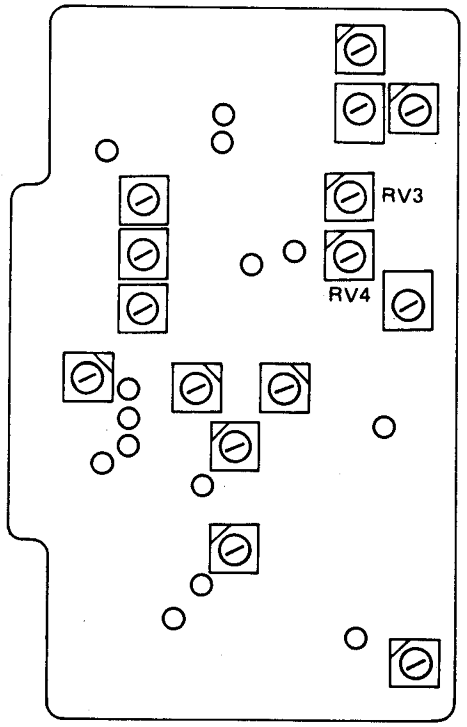


*Fig. 12-3*

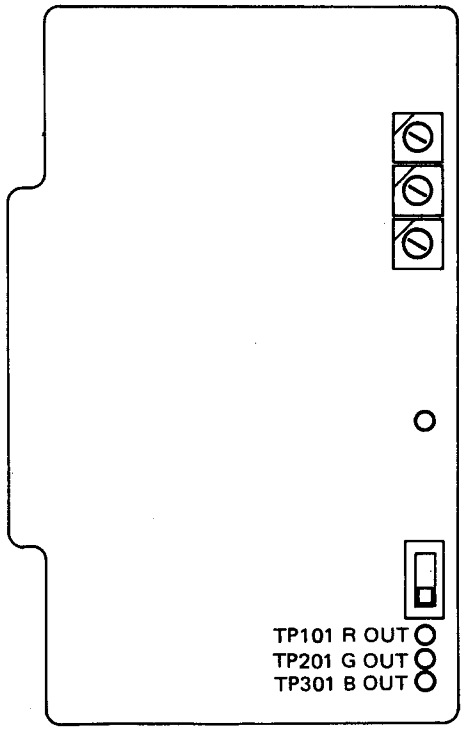
**BG board**

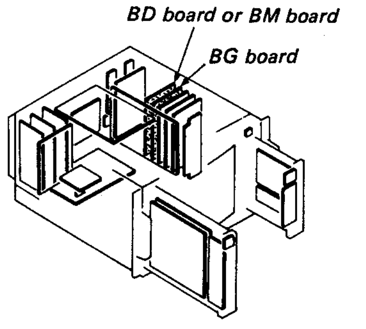


**BD board or BM board**



**BH Board**


TP101 R OUT
TP201 G OUT
TP301 B OUT


BD board or BM board
BG board

## 13. BD BOARD (PAL) OR BM BOARD (PAL-M) PAL-D GAIN AND CCD BIAS ADJUSTMENT

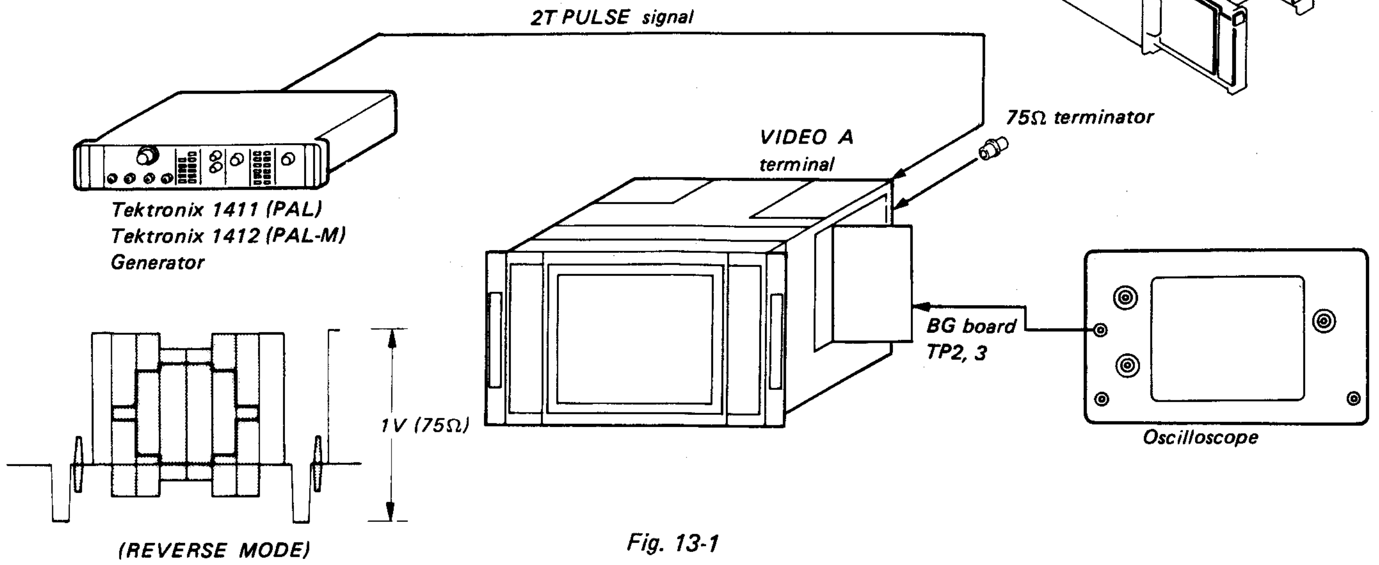

2T PULSE signal
75Ω terminator
VIDEO A terminal
Tektronix 1411 (PAL)
Tektronix 1412 (PAL-M)
Generator
BG board TP2, 3
Oscilloscope
1 V (75Ω)
(REVERSE MODE)

Fig. 13-1

- * Set the PAL switch of BVM-1410P or 1410PM to the D position.

1. Complete the connections as shown in Fig. 13-1.
   Turn on the power of this monitor. Set the INPUT switch to the A position, and the SYNC switch to the INT position.
2. Connect the oscilloscope probe to TP2 on the BG board.
3. Turn RV5 and RV6 on the BD or BM board fully clockwise.
4. By observing the waveform shown in Fig. 13-2, adjust RV9 on the BD or BM board so that it becomes A = B.
5. Adjust RV5 on the BD or BM board so that the waveform shown in Fig. 13-2 becomes flat.
6. Connect the probe of the oscilloscope to TP3 on the BG board and obseve the section shown in Fig. 13-3.
7. Adjust RV10 on the BD or BM board so that the waveform of the oscilloscope becomes A = B.
8. Adjust RV6 on the BD or BM board so that the waveform shown in Fig. 13-3 becomes flat.

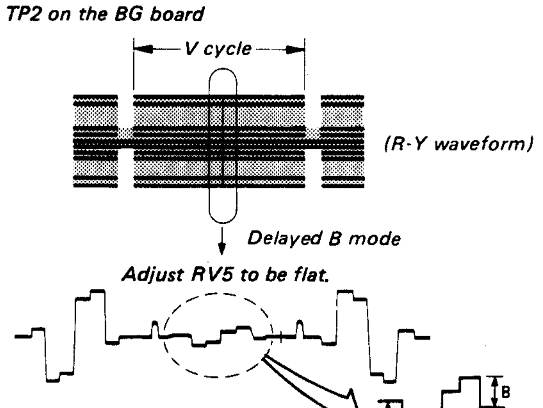

TP2 on the BG board
V cycle
(R-Y waveform)
Delayed B mode
Adjust RV5 to be flat.
A
B

Fig. 13-2

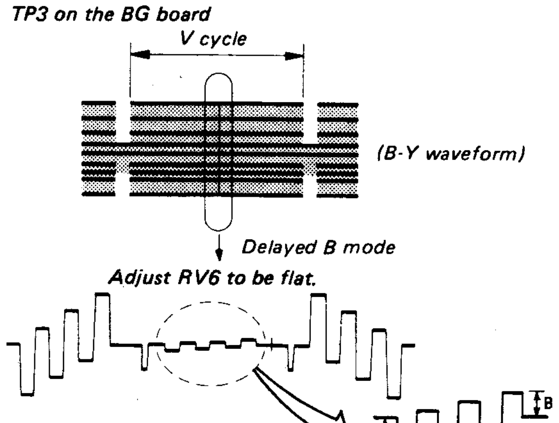
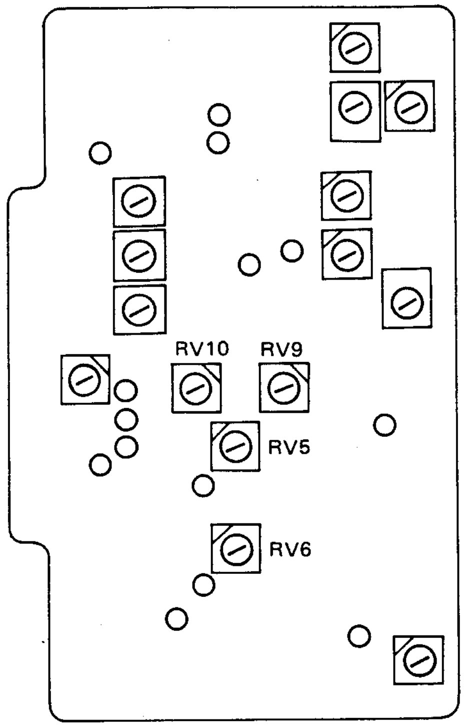
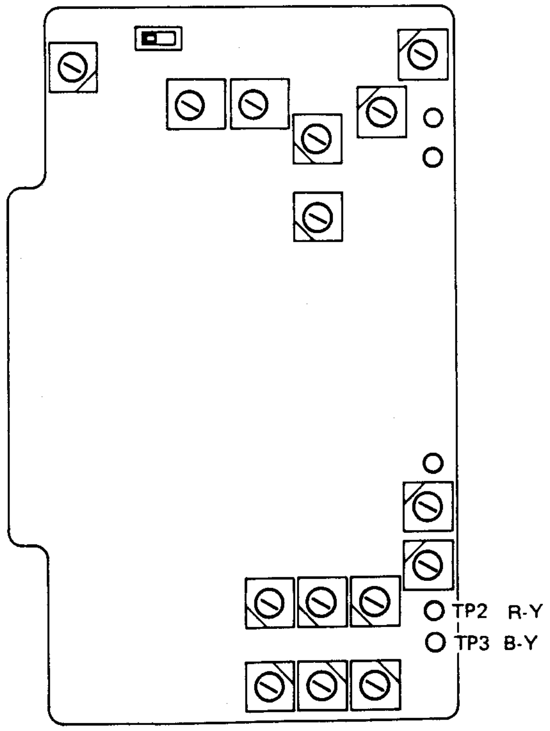

TP3 on the BG board
V cycle
(B-Y waveform)
Delayed B mode
Adjust RV6 to be flat.
A
B

Fig. 13-3

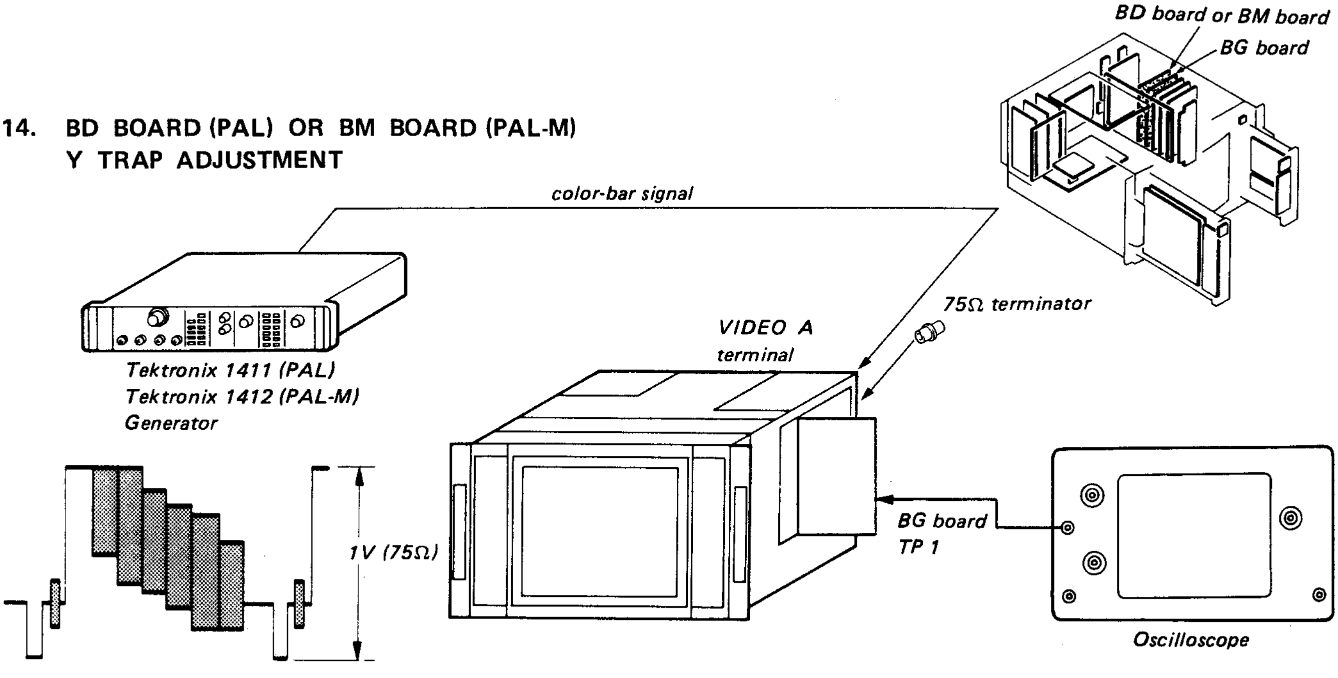
**BD board or BM board**


RV10
RV9
RV5
RV6

**BG board**


TP2 R-Y
TP3 B-Y

## 14. BD BOARD (PAL) OR BM BOARD (PAL-M) Y TRAP ADJUSTMENT


BD board or BM board
BG board
color-bar signal
75Ω terminator
VIDEO A terminal
Tektronix 1411 (PAL)
Tektronix 1412 (PAL-M)
Generator
1V (75Ω)
BG board TP 1
Oscilloscope
(FULL FIELD)

1. Input color-bar signal to VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP1 of BG board.
3. Adjust L1 of BD or BM board so that 4.43 MHz (PAL) or 3.58 MHz (PAL-M) subcarrier is minimum as shown in Fig. 14-1.

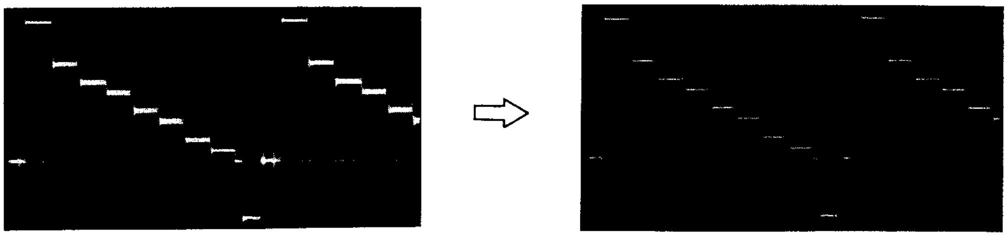
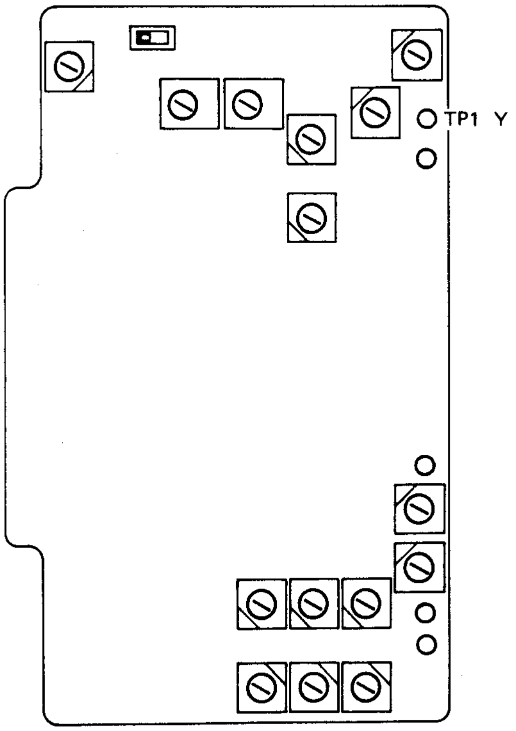
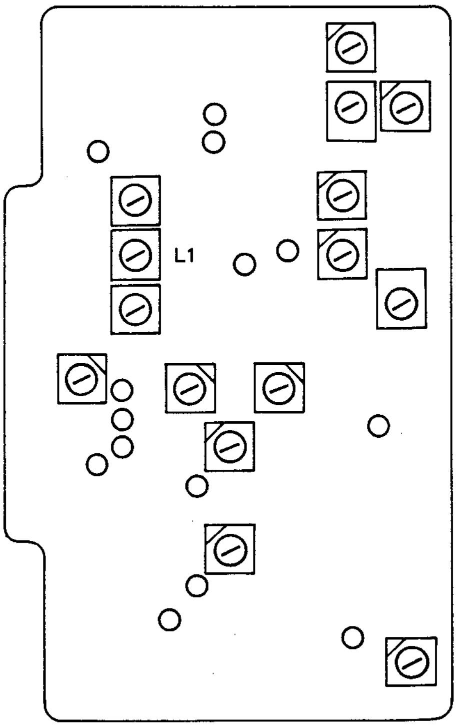


Fig. 14-1

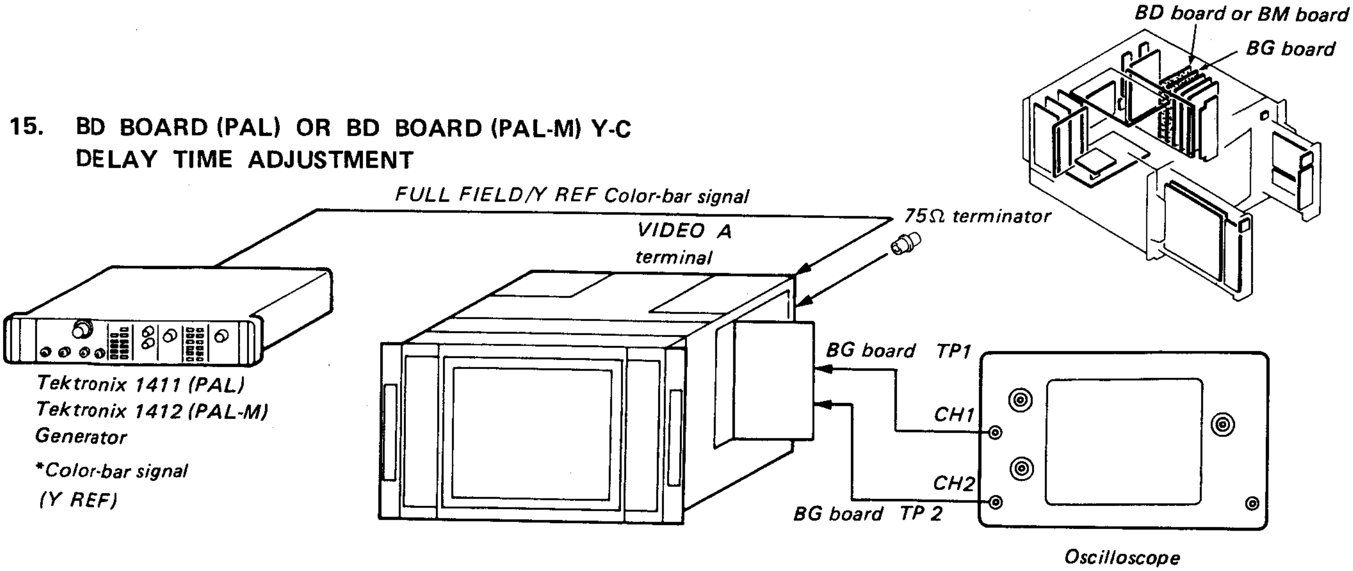
**BG board**



**BD board or BM board**



## 15. BD BOARD (PAL) OR BD BOARD (PAL-M) Y-C DELAY TIME ADJUSTMENT


BD board or BM board
BG board
FULL FIELD/Y REF Color-bar signal
VIDEO A terminal
75Ω terminator
Tektronix 1411 (PAL)
Tektronix 1412 (PAL-M)
Generator
*Color-bar signal
(Y REF)
BG board TP1
CH1
CH2
BG board TP 2
Oscilloscope

* Set the PAL switch of the BVM-1410P or 1410PM to the S position.

1. Input color-bar signal (FULL FIELD/Y REF) to the VIDEO A terminal of the set.
2. Connect an oscilloscope (CH-1 probe) to the TP1 of BG board and connect an oscilloscope (CH-2 probe) to the TP2 of BG board (VERT mode of the oscilloscope is CHOP).
3. Adjust RV1 of BD or BM board so that the output waveform as shown in Fig. 15-1.

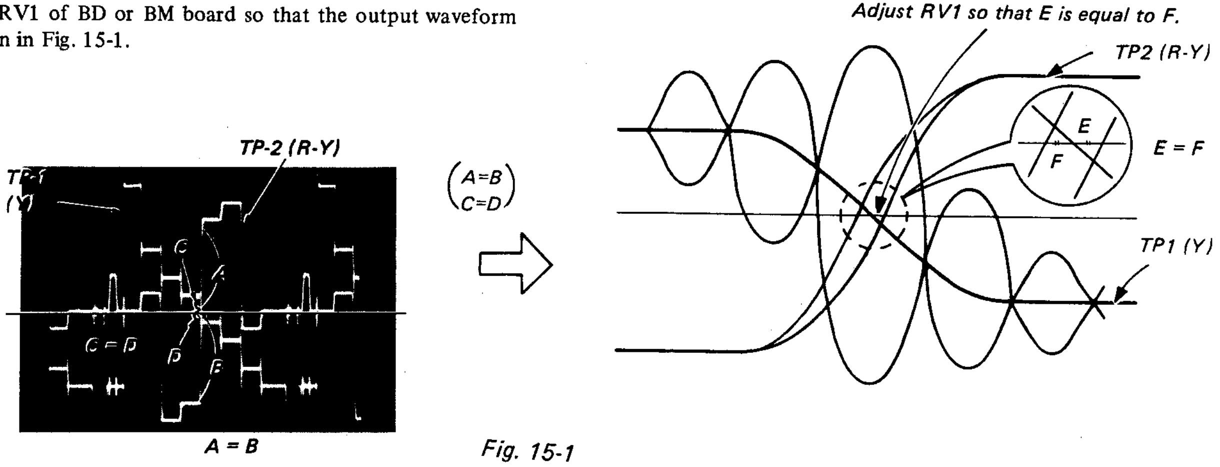
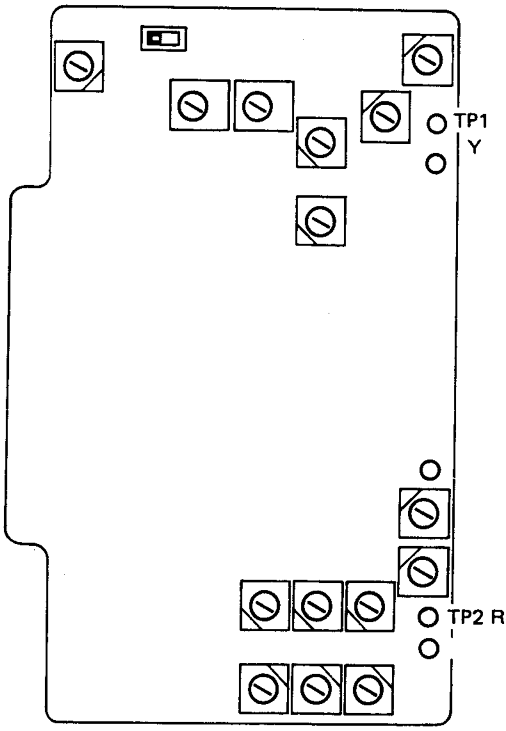
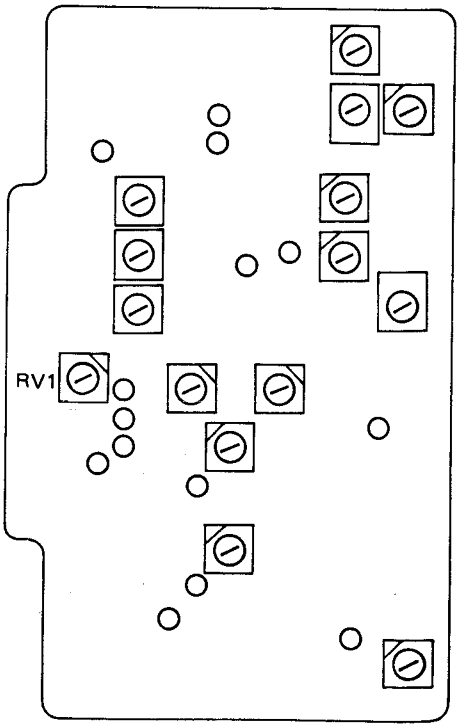

TP-2 (R-Y)
TP-1 (Y)
C
A
C = D
D
B
A = B
(A=B C=D)
Adjust RV1 so that E is equal to F.
TP2 (R-Y)
E
F
E = F
TP1 (Y)

Fig. 15-1

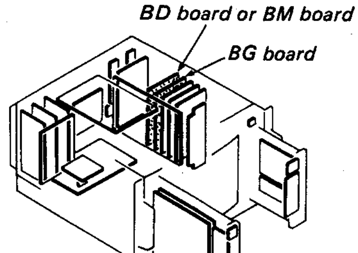
BG Board

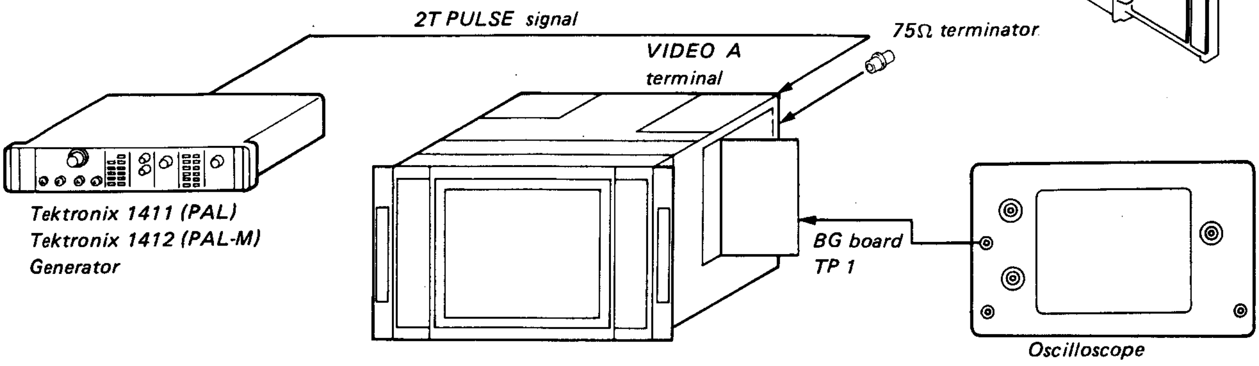


BD board or BM board

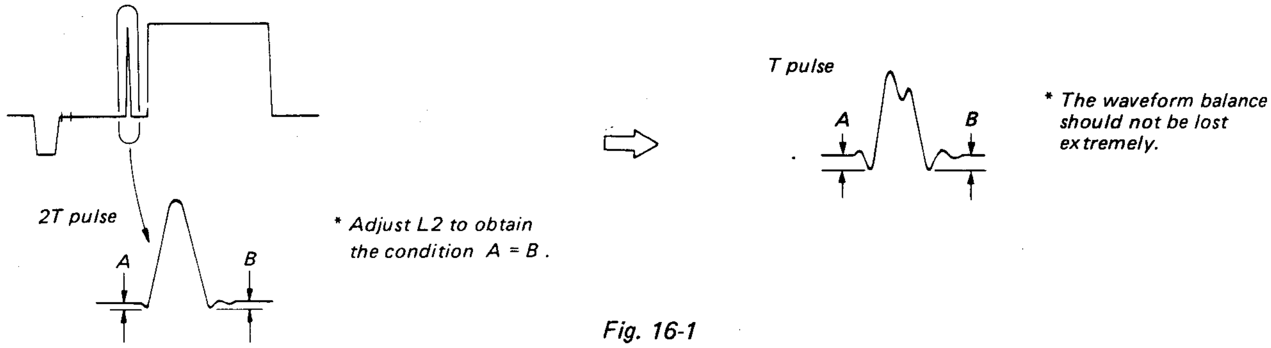


## 16. BD BOARD (PAL) OR BM BOARD (PAL-M) 2T PULSE CORRECTION ADJUSTMENT


BD board or BM board
BG board


2T PULSE signal
VIDEO A
terminal
75Ω terminator
Tektronix 1411 (PAL)
Tektronix 1412 (PAL-M)
Generator
BG board
TP 1
Oscilloscope

1. Input 2T pulse signal to VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP1 of BG board.
3. Adjust L2 of BD or BM board so that A is equal to B as shown in Fig. 16-1.
4. Change the input signal from 2T pulse to T pulse, and make sure the waveform balance is not lost extremely as shown in Fig. 16-1.

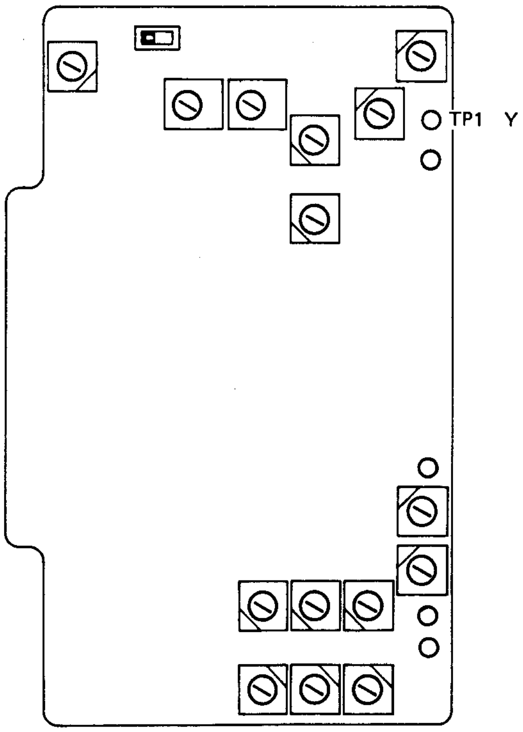

2T pulse
A
B
T pulse
A
B

* Adjust L2 to obtain the condition A = B .

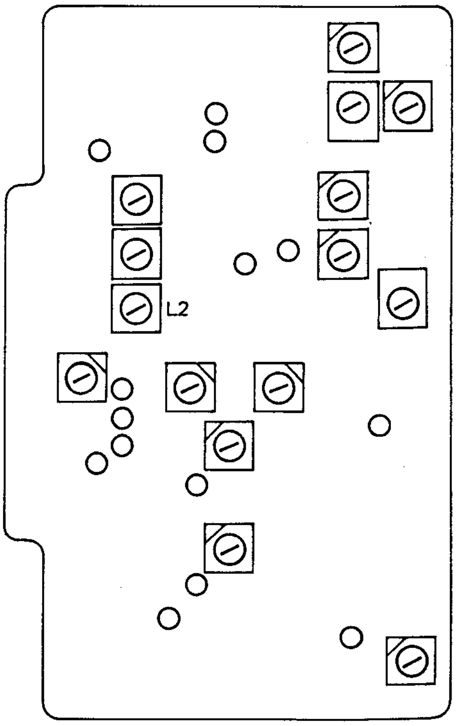
* The waveform balance should not be lost extremely.

Fig. 16-1

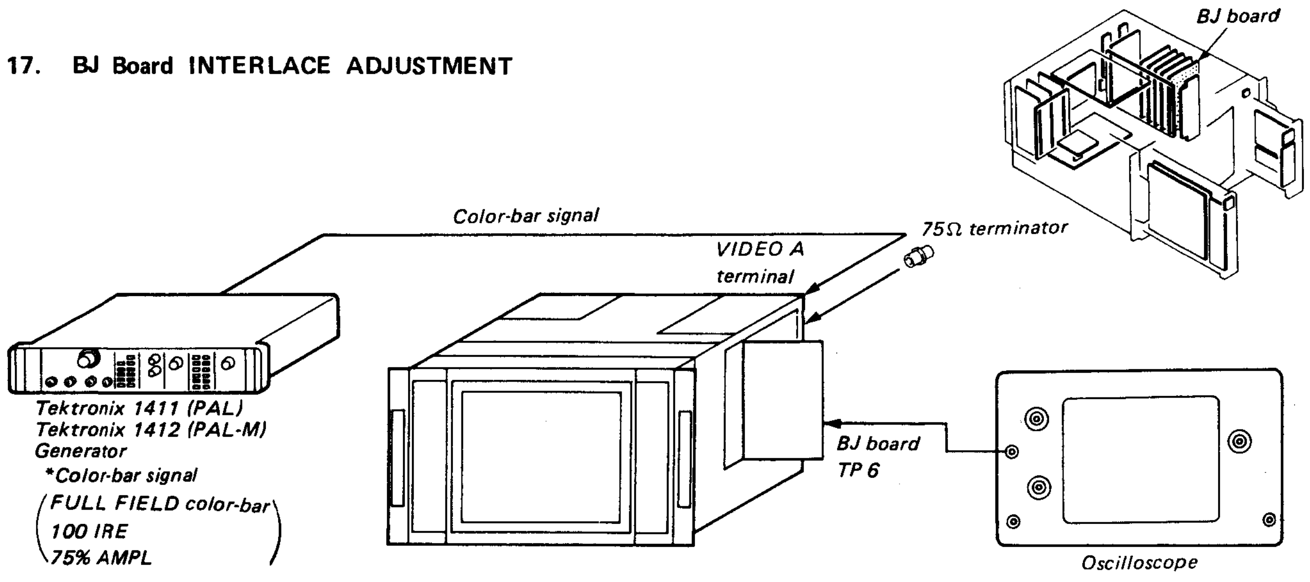
**BG board**



**BD board or BM board**



## 17. BJ Board INTERLACE ADJUSTMENT


BJ board
Color-bar signal
VIDEO A
terminal
75Ω terminator
Tektronix 1411 (PAL)
Tektronix 1412 (PAL-M)
Generator
*Color-bar signal
(FULL FIELD color-bar
100 IRE
75% AMPL)
BJ board
TP 6
Oscilloscope

1. Input color-bar signal to the VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP6 on the BJ board.
3. Adjust RV6 to obtain the waveform on the oscilloscope as shown in Fig. 17-1.

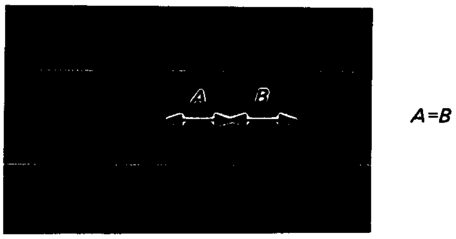
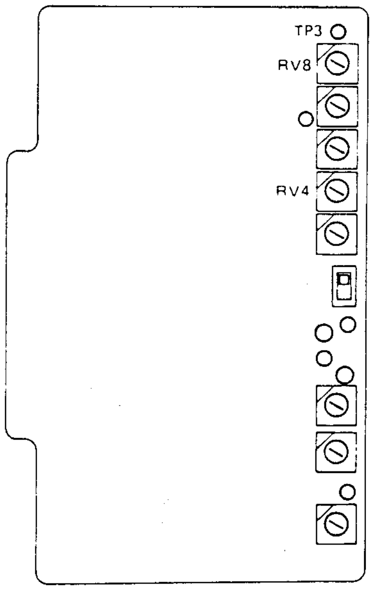
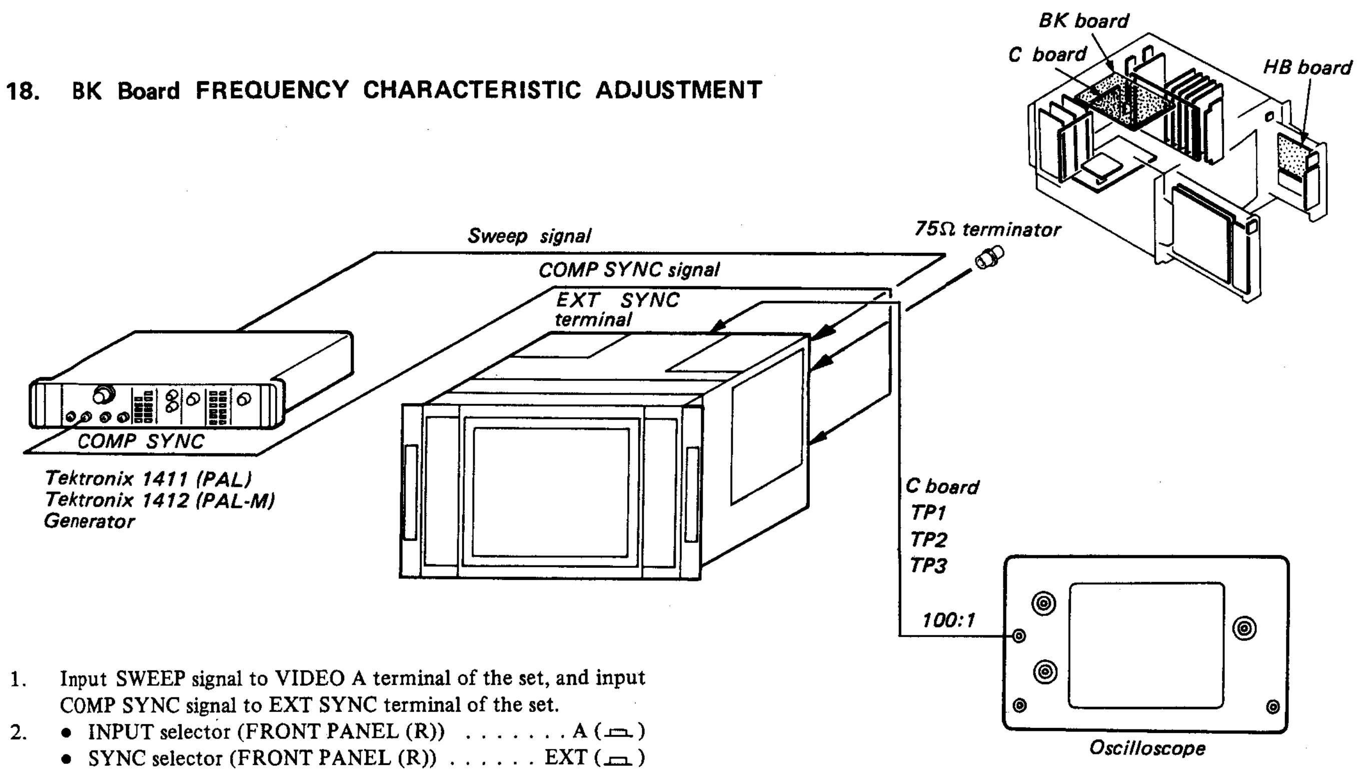


Fig. 17-1

**BJ board**



## 18. BK Board FREQUENCY CHARACTERISTIC ADJUSTMENT


BK board
C board
HB board
Sweep signal
75Ω terminator
COMP SYNC signal
EXT SYNC terminal
COMP SYNC
Tektronix 1411 (PAL)
Tektronix 1412 (PAL-M)
Generator
C board
TP1
TP2
TP3
100:1
Oscilloscope

1. Input SWEEP signal to VIDEO A terminal of the set, and input COMP SYNC signal to EXT SYNC terminal of the set.
2. 
   - INPUT selector (FRONT PANEL (R)) . . . . . . . A (⊓)
   - SYNC selector (FRONT PANEL (R)) . . . . . . EXT (⊓)
   - MODE selector (FRONT PANEL (R)) . . . . . MONO (⊓)
   - FILTER SW. (HB board S8) . . . . . . . . . . . . . . OFF
3. Connect an oscilloscope to the TP1 on the C board.
   *Probe: 100:1
4. Adjust CV101 and CV102 on the BK board so that output waveform becomes flat in a range of 0 to 8MHz as shown in Fig. 18-1.

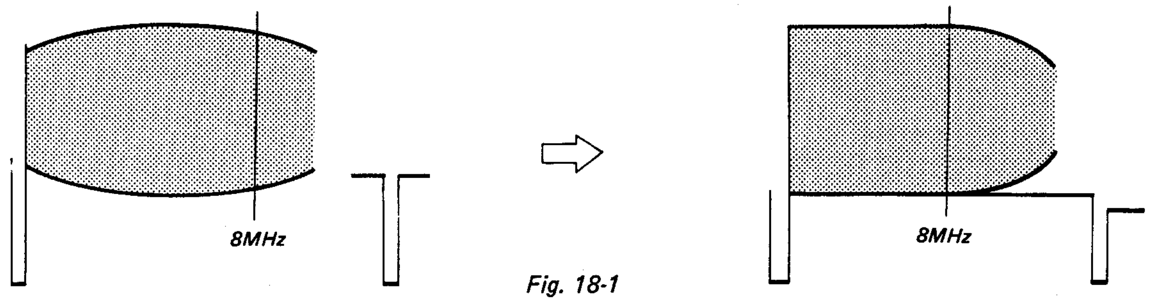
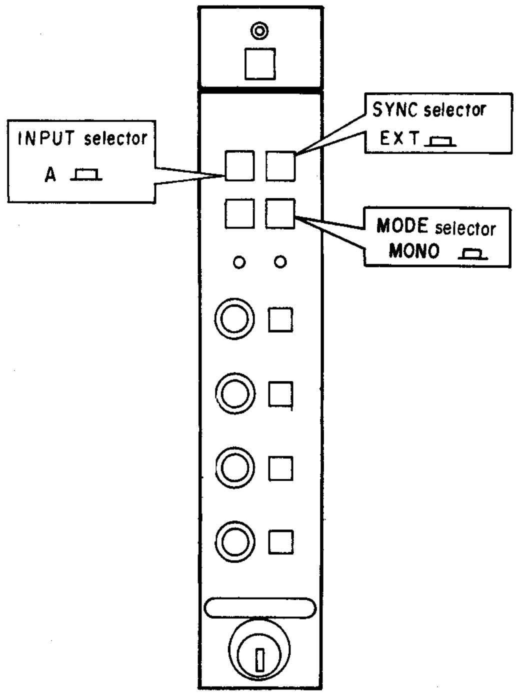


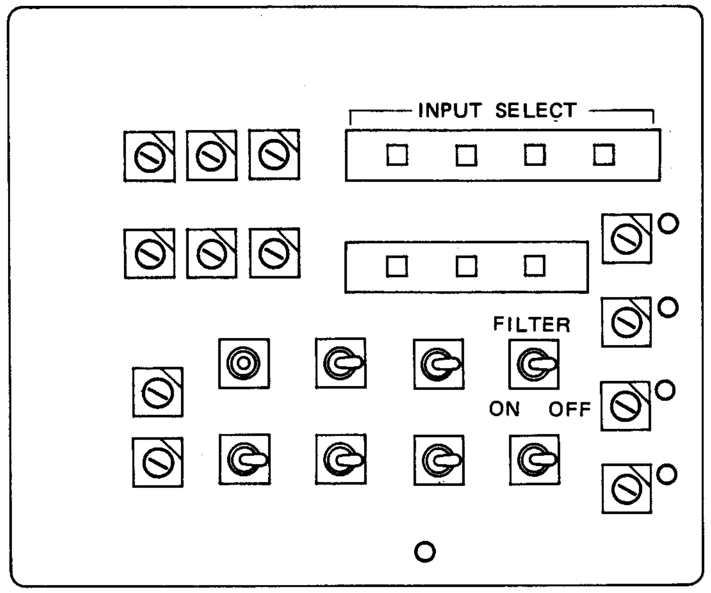
Fig. 18-1

5. Connect on oscilloscope to the TP2 on the C board.
6. Adjust CV201 and CV202 on the BK board so that output waveform becomes flat in a range of 0 to 8MHz as shown in Fig. 18-1.
7. Connect an oscilloscope to the TP3 on the C board.
8. Adjust CV301 and CV302 on the BK board so that output waveform becomes flat in a range of 0 to 8MHz as shown in Fig. 18-1.

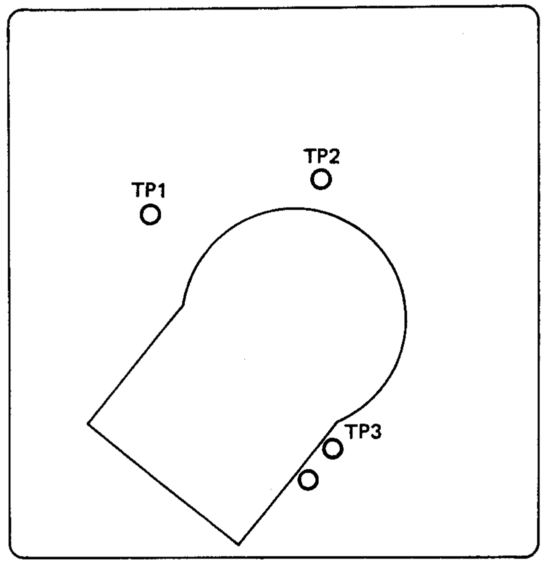
**FRONT PANEL (R)**


INPUT selector
A ⊓
SYNC selector
EXT ⊓
MODE selector
MONO ⊓

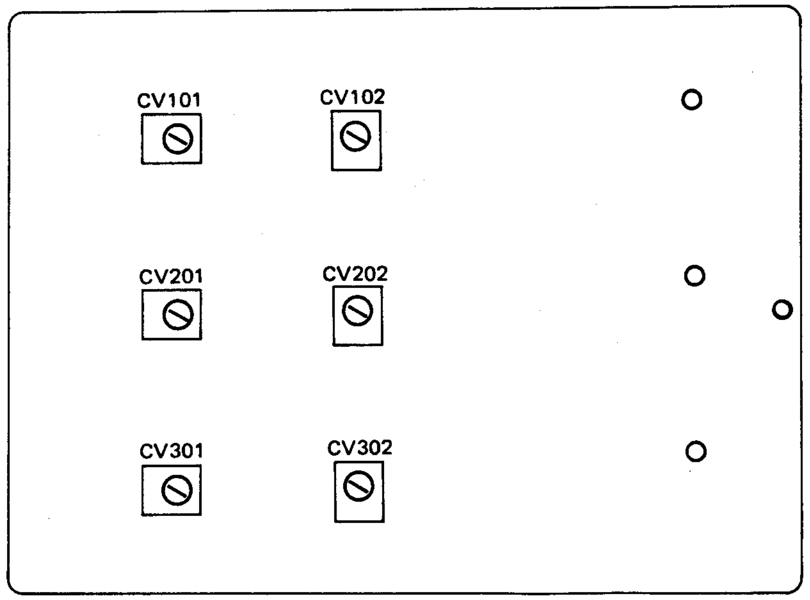
**HB board**


INPUT SELECT
FILTER
ON OFF

**C board**

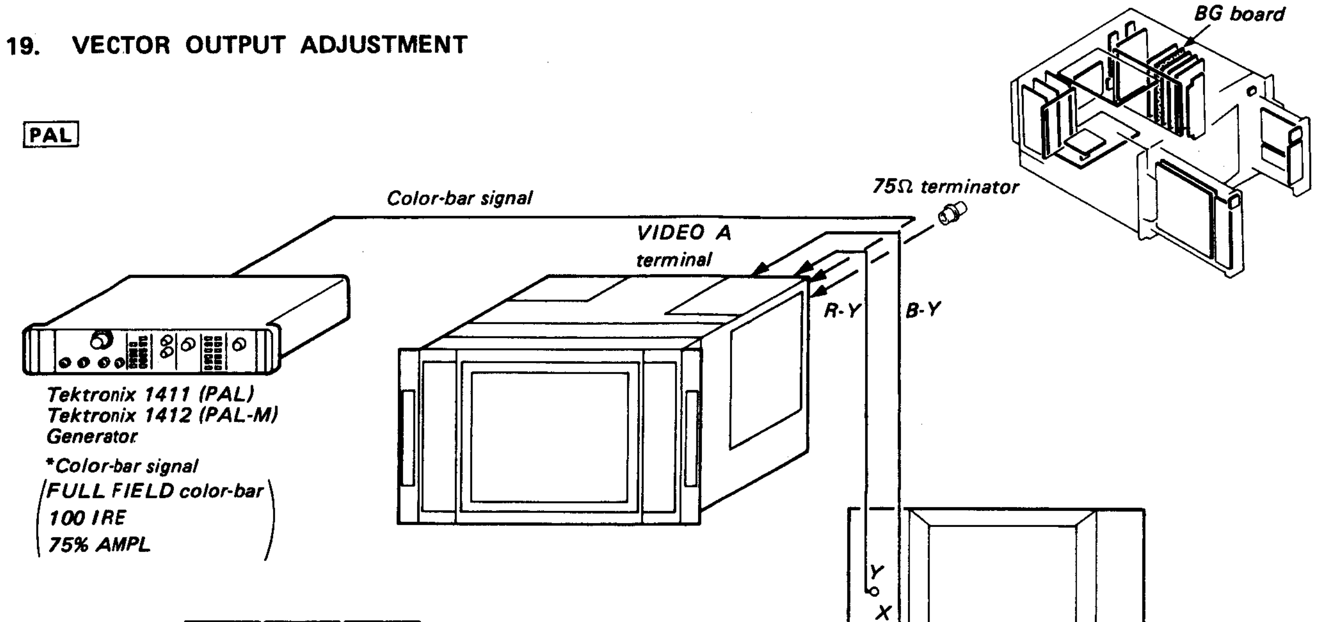


**BK board**


CV101
CV102
CV201
CV202
CV301
CV302

## 19. VECTOR OUTPUT ADJUSTMENT

**PAL**


BG board
Color-bar signal
75Ω terminator
VIDEO A
terminal
R-Y
B-Y
Tektronix 1411 (PAL)
Tektronix 1412 (PAL-M)
Generator
*Color-bar signal
FULL FIELD color-bar
100 IRE
75% AMPL
Y
X
Vector monitor

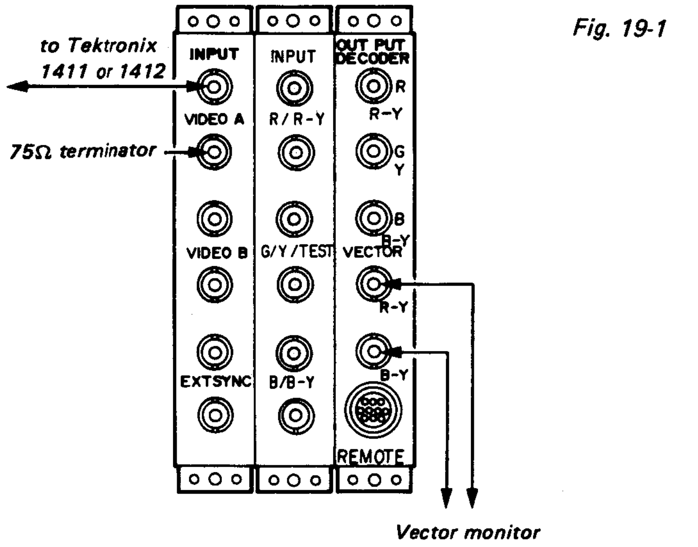
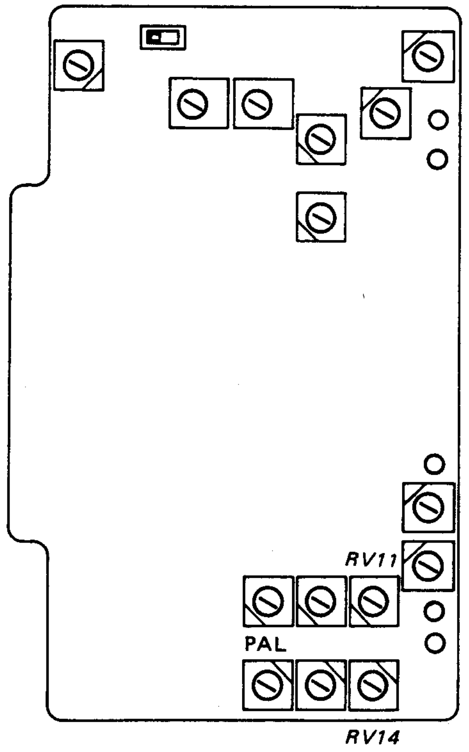

to Tektronix
1411 or 1412
75Ω terminator
INPUT
VIDEO A
VIDEO B
EXTSYNC
INPUT
R/R-Y
G/Y/TEST
B/B-Y
OUT PUT
DECODER
R
R-Y
G
Y
B
B-Y
VECTOR
R-Y
B-Y
REMOTE
Vector monitor

Fig. 19-1

**BG board**


RV11
PAL
RV14

1. Complete the connections as shown in Fig. 19-1.
2. Adjust RV-11 (R-Y) and RV-14 (B-Y) on the BG board so that the areas (6) indicated with arrows Fig. 19-2 enter its center as far as possible.

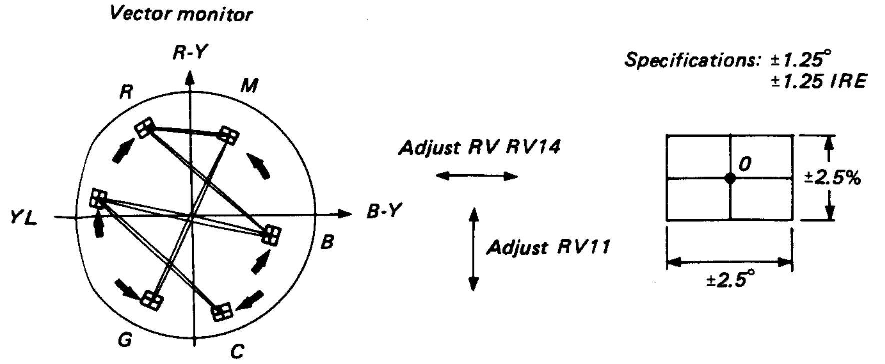
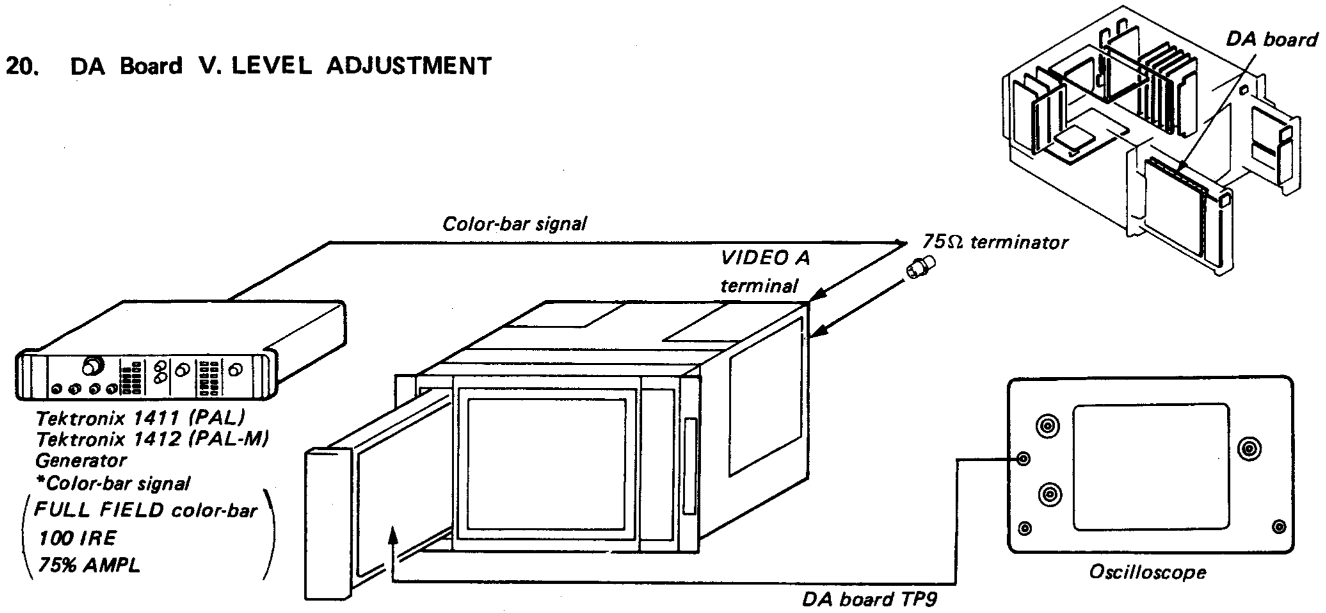

Vector monitor
R-Y
R
M
YL
B-Y
B
G
C
Adjust RV RV14
Adjust RV11
Specifications: ±1.25°
±1.25 IRE
0
±2.5%
±2.5°

Fig. 19-2

## 20. DA Board V. LEVEL ADJUSTMENT


DA board
Color-bar signal
VIDEO A
terminal
75Ω terminator
Tektronix 1411 (PAL)
Tektronix 1412 (PAL-M)
Generator
*Color-bar signal
FULL FIELD color-bar
100 IRE
75% AMPL
Oscilloscope
DA board TP9

**PAL**

1. Input color-bar signal to the VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP9 on the DA board.
3. Adjust RV18 on the DA board so that output waveform is 12.0Vp-p as shown in Fig. 20-1.

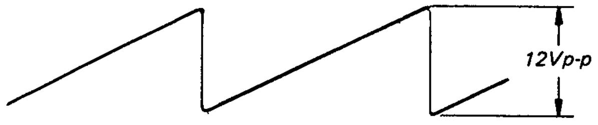
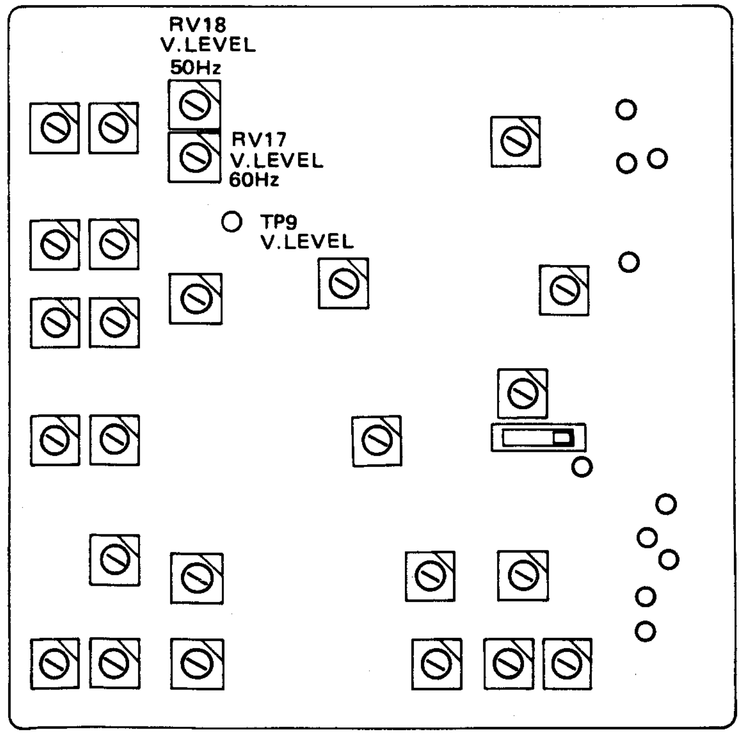


Fig. 20-1

**DA board**

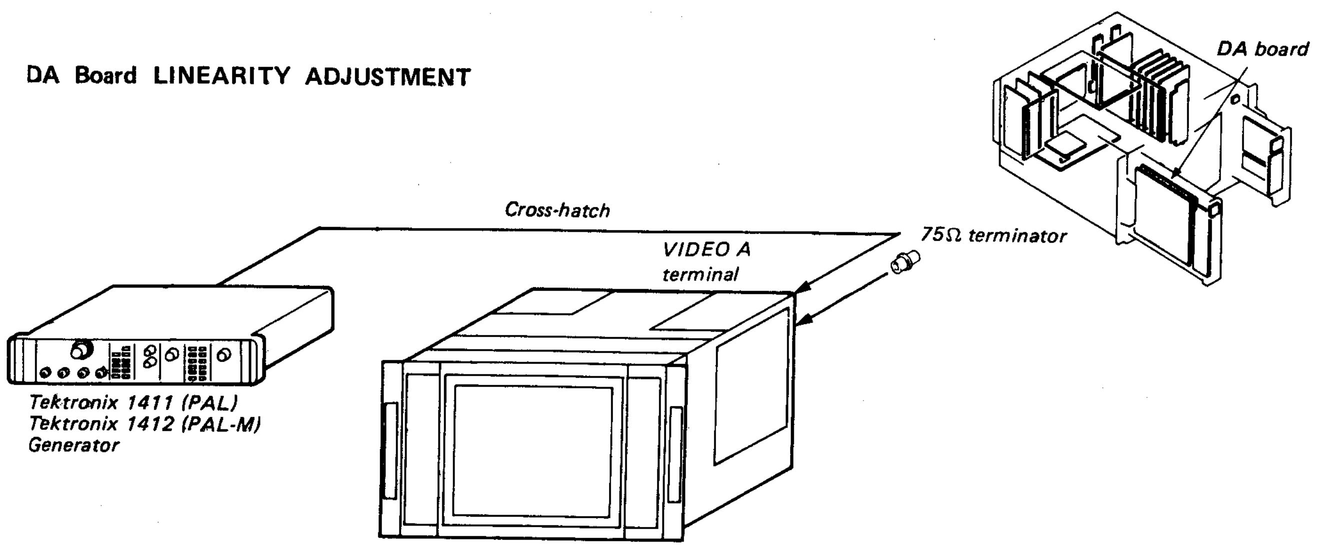

RV18
V.LEVEL
50Hz
RV17
V.LEVEL
60Hz
TP9
V.LEVEL

The following adjustment is required when a PAL-M or NTSC system signal is received.

**PAL-M** **NTSC**

4. Input color-bar signal (TEK-1412 or TEK-1410) to the VIDEO A terminal of the set.
5. Connect an oscilloscope to the TP9 on the DA board.
6. Adjust RV17 on the DA board so that output waveform is 12.0Vp-p.

## 21. DA Board LINEARITY ADJUSTMENT


DA board
Cross-hatch
VIDEO A terminal
75Ω terminator
Tektronix 1411 (PAL)
Tektronix 1412 (PAL-M)
Generator

### TOP AND BOTTOM PIN ADJUSTMENT

1. Receive cross-hatch signal and with H-LINE only.
2. Adjust T&B pin distortion H PHASE by turning DA board RV27 (TRAPEZOID) as shown in Fig.
3. Adjust T&B pin distortion gain by turning DA board RV13 as shown in Fig. 21-1.
4. Adjust T&B pin distortion vertical balance by turning DA board RV10 as shown in Fig. 21-1.
5. Adjust PARALLELOGRAM distortion by turning DA board RV28 (PARALLEL) as shown in Fig. 20-1.
6. Mark tracking by repeating 2 through 5.
7. UNDER SCAN switch UNDER (▭).
8. Adjust T&B distortion gain by turning DA board RV14.

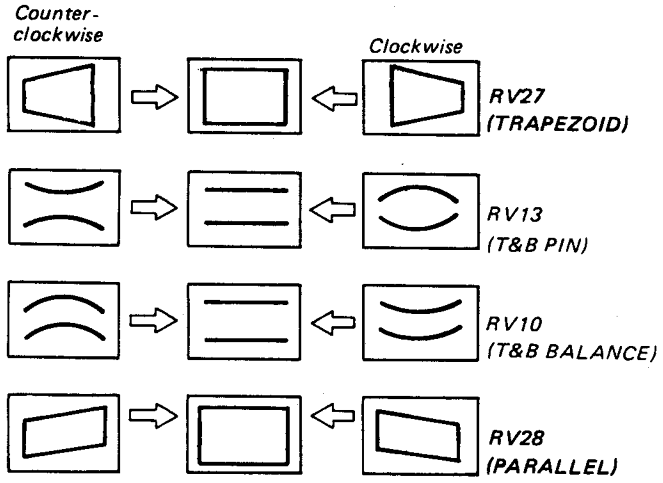
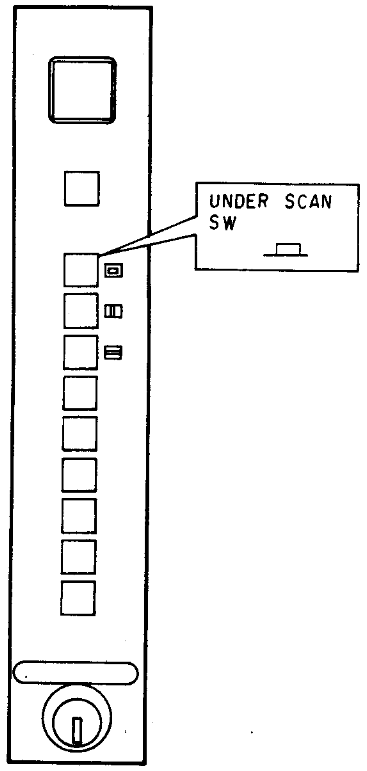
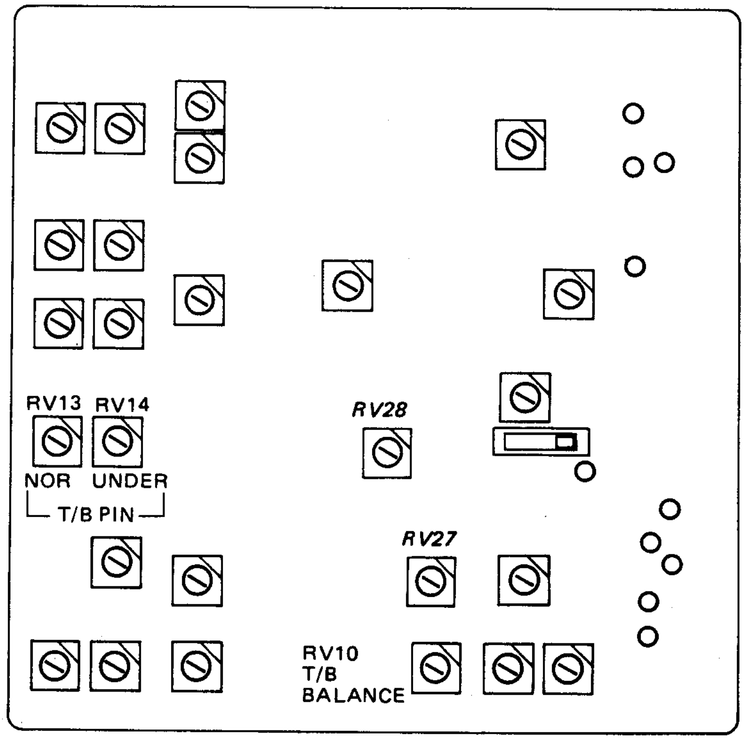

Counter-clockwise
Clockwise
RV27 (TRAPEZOID)
RV13 (T&B PIN)
RV10 (T&B BALANCE)
RV28 (PARALLEL)

Fig. 21-1

FRONT PANEL (L)


UNDER SCAN SW

DA board


RV13 RV14
NOR UNDER
T/B PIN
RV28
RV27
RV10 T/B BALANCE

### V. LINEARITY ADJUSTMENT

1. Receive cross-hatch signal and with H-LINE only.
2. Adjust V. CENTER by turning DA board RV21.
3. Adjust V. LIN BALANCE by turning DA board RV20 as shown in Fig. 21-2.
4. Adjust V. LIN GAIN by turning DA board RV22 as shown in Fig. 20-3.
5. Adjust V. HEIGHT by turning DA board RV23.
6. Mark tracking by repeating steps 2. through 5.

*RV20..... V LIN BALANCE*

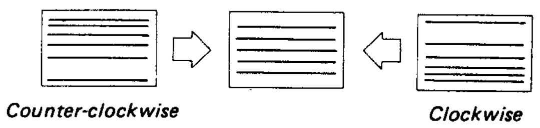

Counter-clockwise
Clockwise

Fig. 21-2

*RV22..... V LIN GAIN*

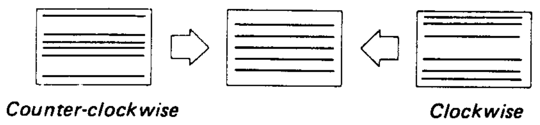

Counter-clockwise
Clockwise

Fig. 21-3

### SIDE PIN ADJUSTMENT

1. Receive cross-hatch signal and with V. LINE only.
2. Adjust SIDE PIN by turning DA board RV15 as shown in Fig. 21-4.
3. Adjust SIDE PIN TILT by turning DA board RV19 as shown in Fig. 21-5.
4. Adjust H. CENTER LINE by turning DA board RV25 as shown in Fig. 21-6.
5. UNDER SCAN switch (Front panel (L)) . . . . UNDER (▭)
6. Adjust SIDE PIN by turning DA board RV16.

*RV15 (SIDE PIN)*

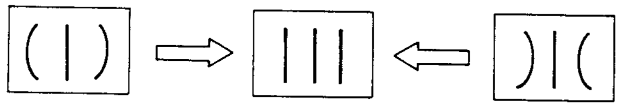


Fig. 21-4

*RV19 (SIDE PIN TILT)*

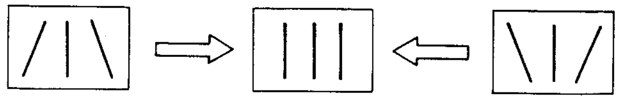


Fig. 21-5

*RV25 (H. CENTER LINE)*

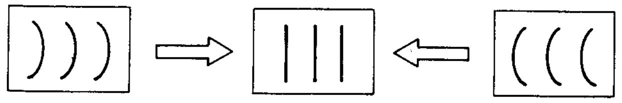
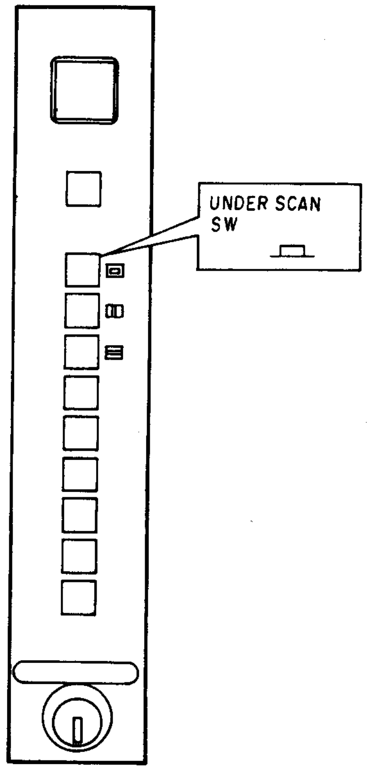
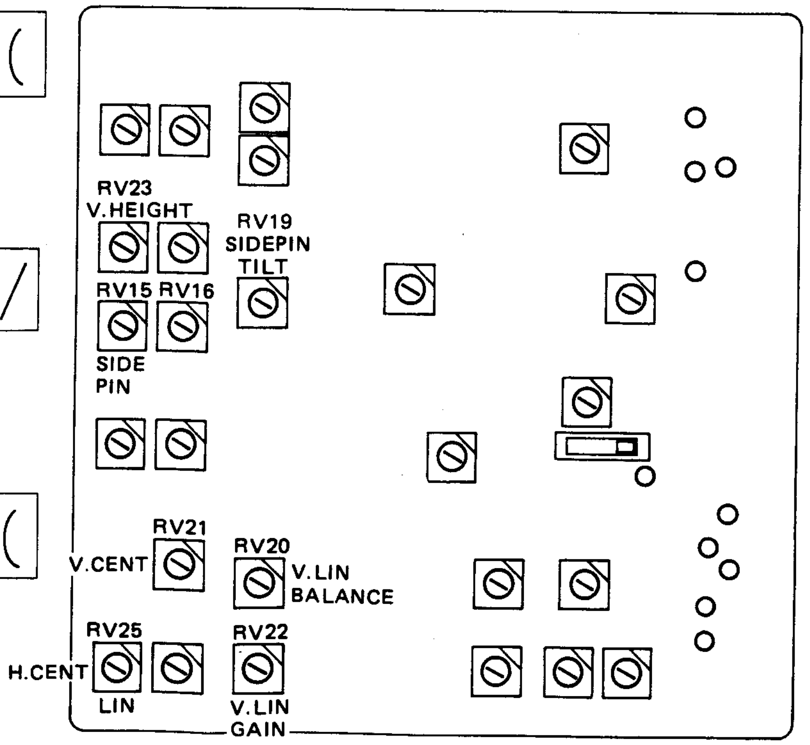


Fig. 21-6

FRONT PANEL (L)


UNDER SCAN SW

DA board


RV23
V.HEIGHT
RV19
SIDEPIN
TILT
RV15 RV16
SIDE
PIN
RV21
V.CENT
RV20
V.LIN
BALANCE
RV25
H.CENT
LIN
RV22
V.LIN
GAIN

**H. LINEARITY ADJUSTMENT**

1. Receive cross-hatch signal and with V-LINE only.
2. Adjust H. LINEARITY by turning DA board RV6 (H LIN GAIN) as shown in Fig. 21-7.

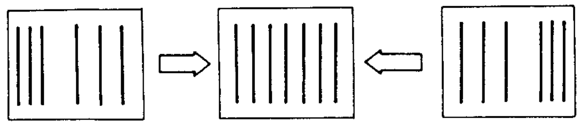
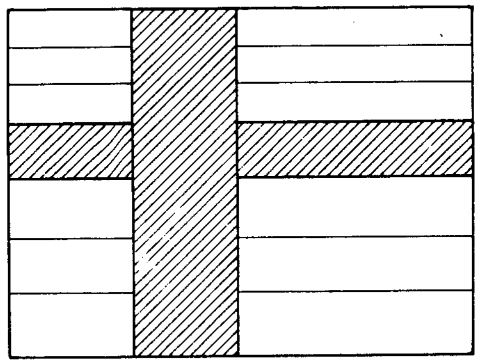


*Fig. 21-7*

## 22. H. FREQ ADJUSTMENT

1. Receive cross-hatch signal, and SYNC selector to EXT( ⎍ )
2. Adjust until the picture stops drifting or moves slowly by turning DA board RV5 as shown in Fig. 22-1.



* Adjust so that the picture either stops drifting or moves slowly.

*Fig. 22-1*

## 23. DA Board H. CENTER, H. BLK PHASE ADJUSTMENT

1. Receive monoscope signal, and UNDER SCAN switch to UNDER (⎍).
2. Picture tube
   - V. DELAY switch . . . . . . . . . . . . . . . . . . IN (⎍)
3. Adjust RV1 and RV7 on the DA baord so that the raster can all be seen by RV1 and RV7 as shown in Fig. 23-1.

**H. CENTER**

4. Adjust RV26 on the DA board so that the out side raster portions of the picture become equal to at the right and the left sides as shown in Fig. 23-1.

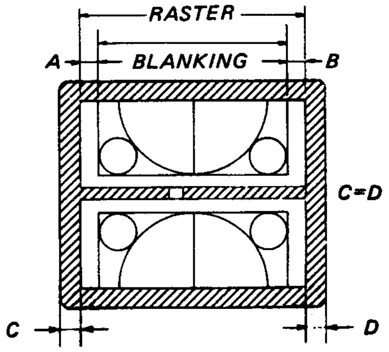

RASTER
BLANKING
A
B
C=D
C
D

*Fig. 23-1*

**H. BLK Adjustment**

5. Connect an oscilloscope to the TP1 on the DA board.
6. Adjust RV1 on the DA board so that the H. BLK pulse width is 9.8μs. Fig. 23-2.

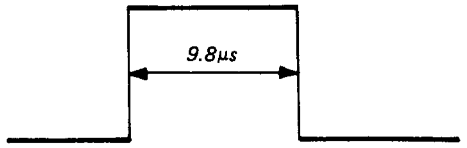
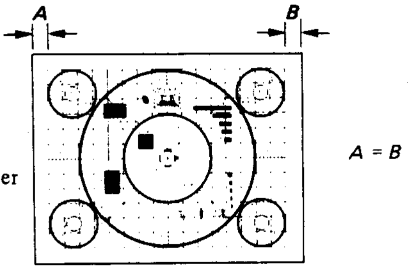


*Fig. 23-2*

**H. BLK PHASE Adjustment**

7. Adjust RV7 on the DA board so that the blanking width at the right and the left sides are equal to as shown in Fig. 23-3.

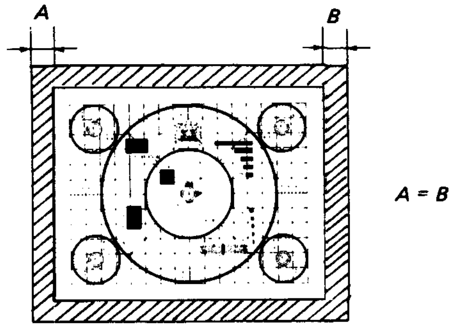


*monoscope pattern*

*Fig. 23-3*

**H. PHASE Adjustment**

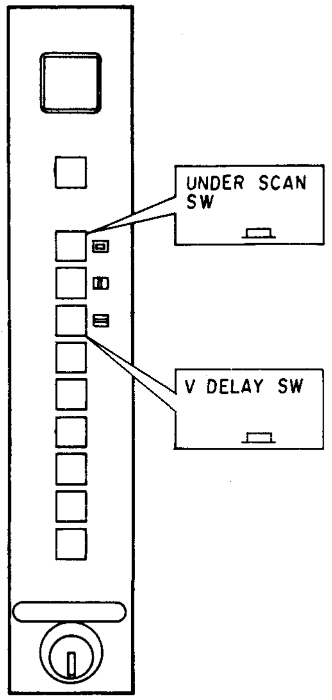
8. Adjust RV26 on the DA board so that the outside raster portions of the picture become equal at the right and the left sides as shown in Fig 23-4.



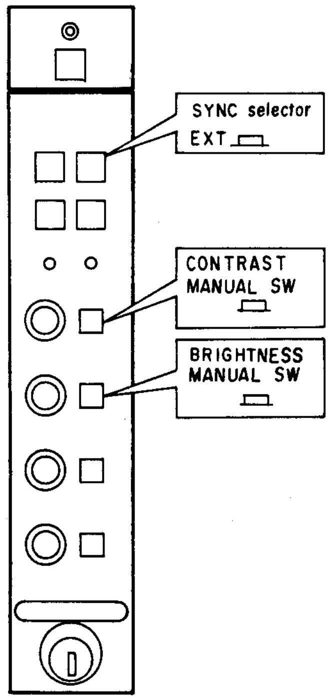
*monoscope pattern*

*Fig. 23-4*

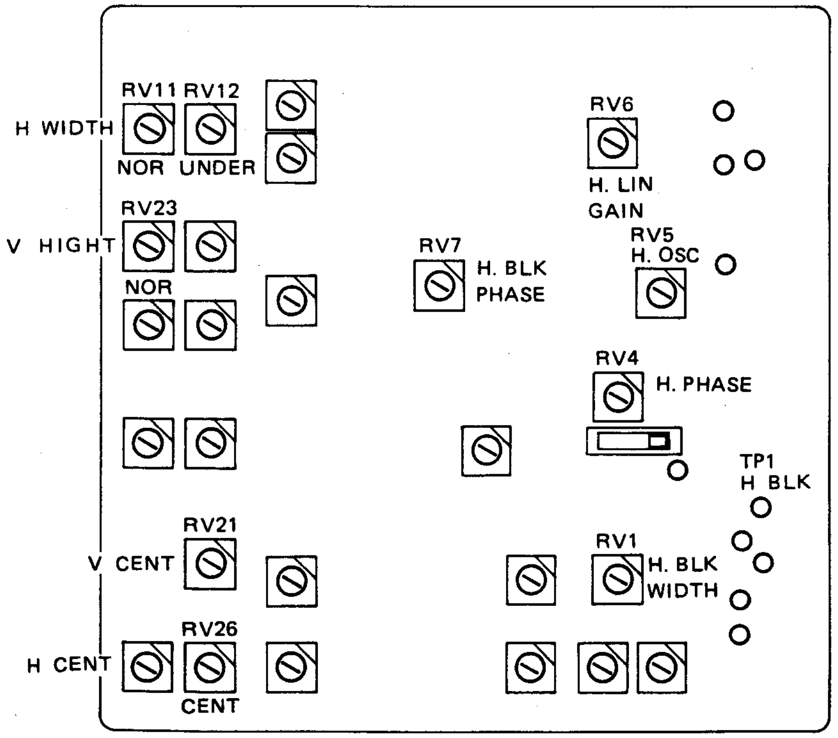
**FRONT PANEL (L)**


UNDER SCAN SW
V DELAY SW

**FRONT PANEL (R)**


SYNC selector
EXT
CONTRAST MANUAL SW
BRIGHTNESS MANUAL SW

**DA board**


H WIDTH
RV11 RV12
NOR UNDER
RV23
V HIGHT
NOR
RV21
V CENT
RV26
H CENT
CENT
RV7
H. BLK PHASE
RV6
H. LIN GAIN
RV5
H. OSC
RV4
H. PHASE
TP1
H BLK
RV1
H. BLK WIDTH

## 24. DA Board H DELAY POSITION ADJUSTMENT

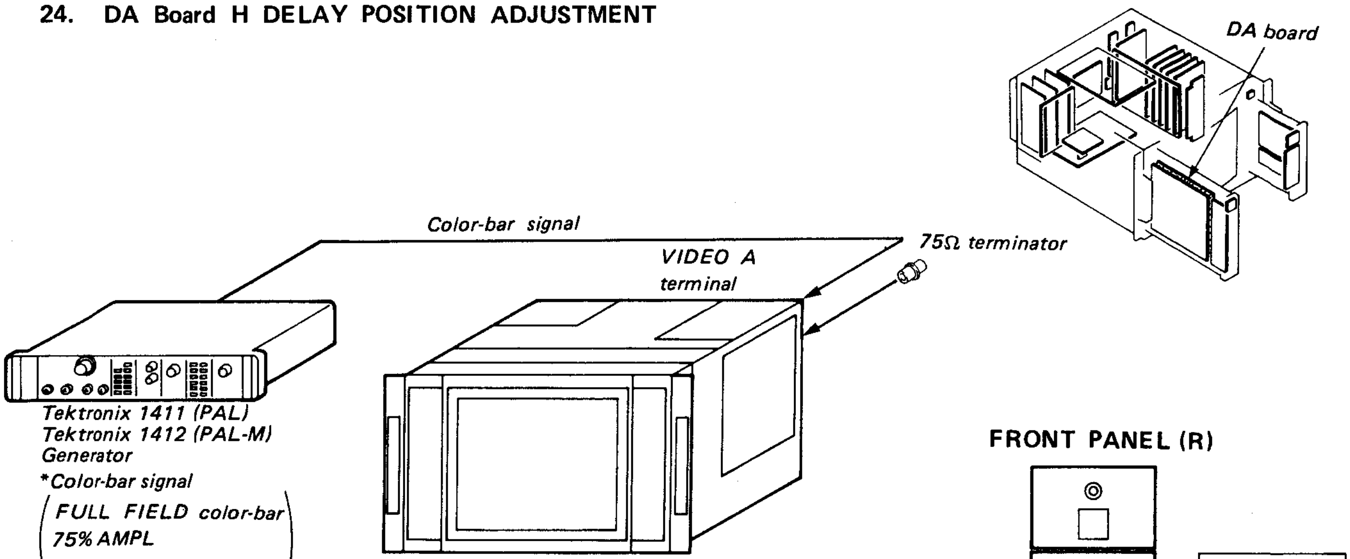
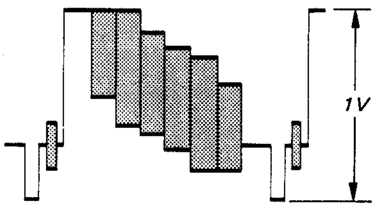
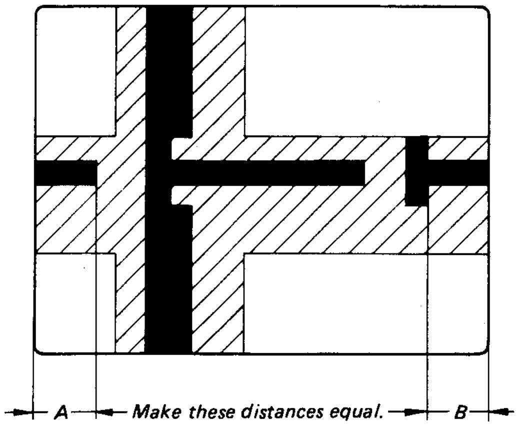

DA board
Color-bar signal
VIDEO A
terminal
75Ω terminator
Tektronix 1411 (PAL)
Tektronix 1412 (PAL-M)
Generator
*Color-bar signal
FULL FIELD color-bar
75% AMPL
100 IRE

Fig. 24-1



FULL FIELD COLOR-BAR

1. Connect as shown in Fig. 24-1.
2. Turn the INPUT selector to "A" (⊓) SYNC selector to "INT" (⊓) and, H DELAY & V DELAY SW to "IN" (⊓) (pulse close position).
3. Adjust the H-DELAY position as shown in Fig. 24-2 by turning DA Board RV2.


A
Make these distances equal.
B

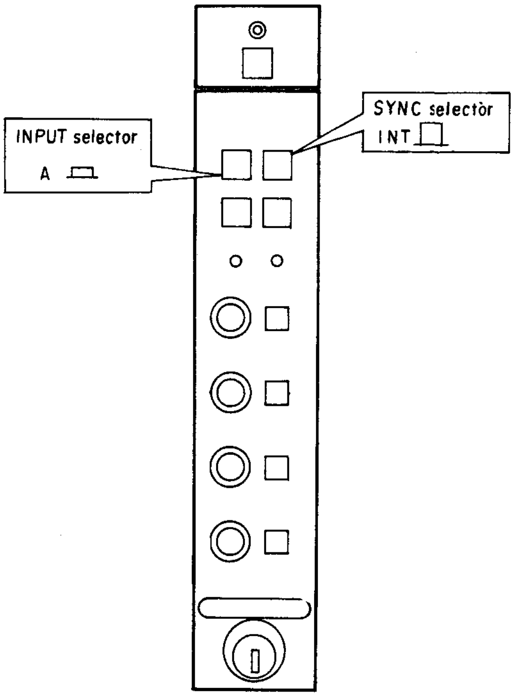
(Adjust RV1 so that A = B.)

Fig. 24-2

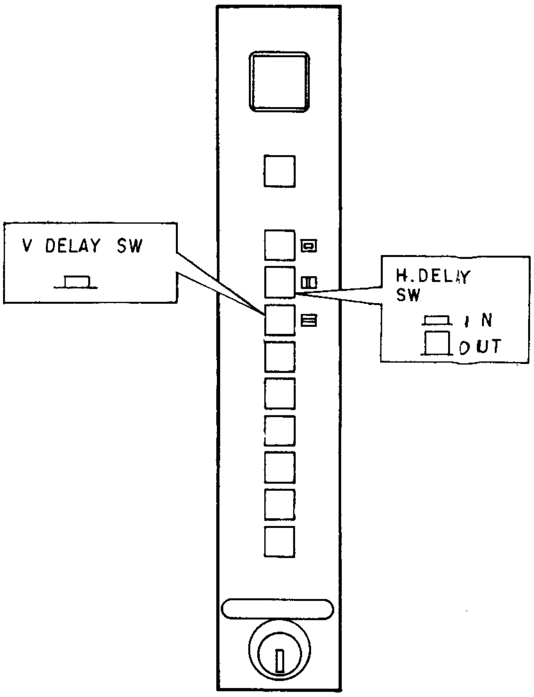
### H. DELAY PULSE WIDTH ADJUSTMENT

1. Connect an oscilloscope to the TP2 on the DA board.
2. Adjust RV3 on the DA board so that PULSE width is equal when switching H-DELAY switch IN and OUT.

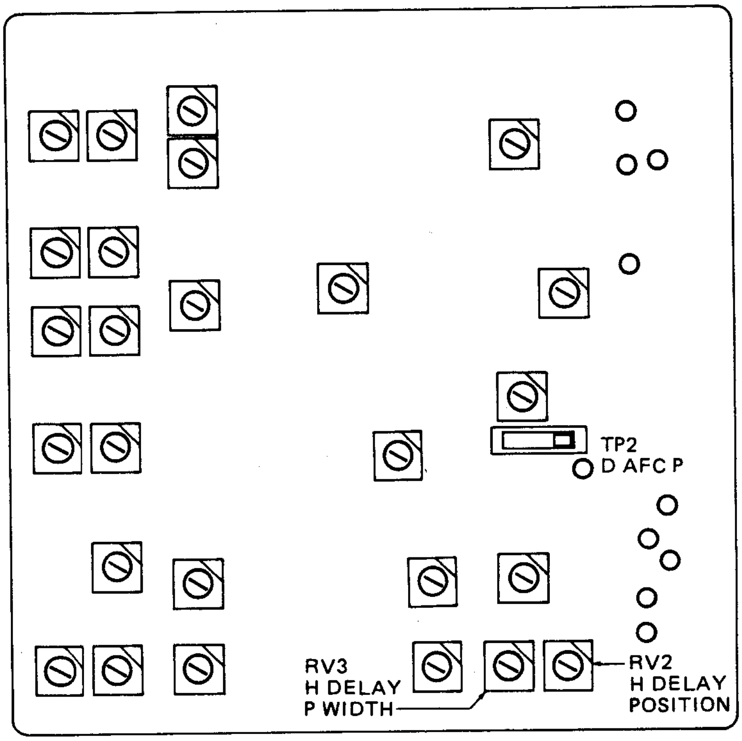
**FRONT PANEL (R)**


INPUT selector
A
SYNC selector
INT

**FRONT PANEL (L)**

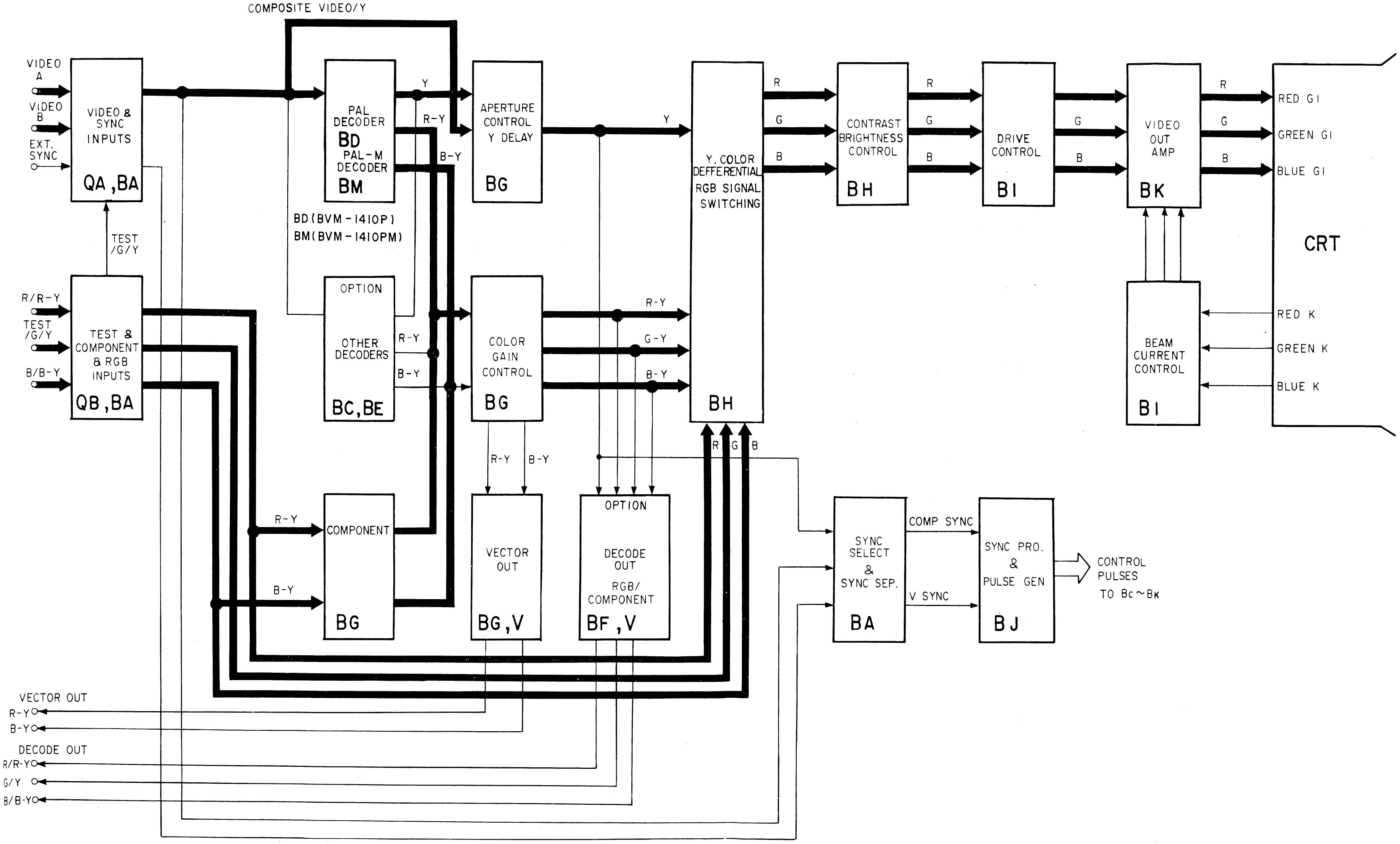

V DELAY SW
H.DELAY SW
IN
OUT

**DA board**

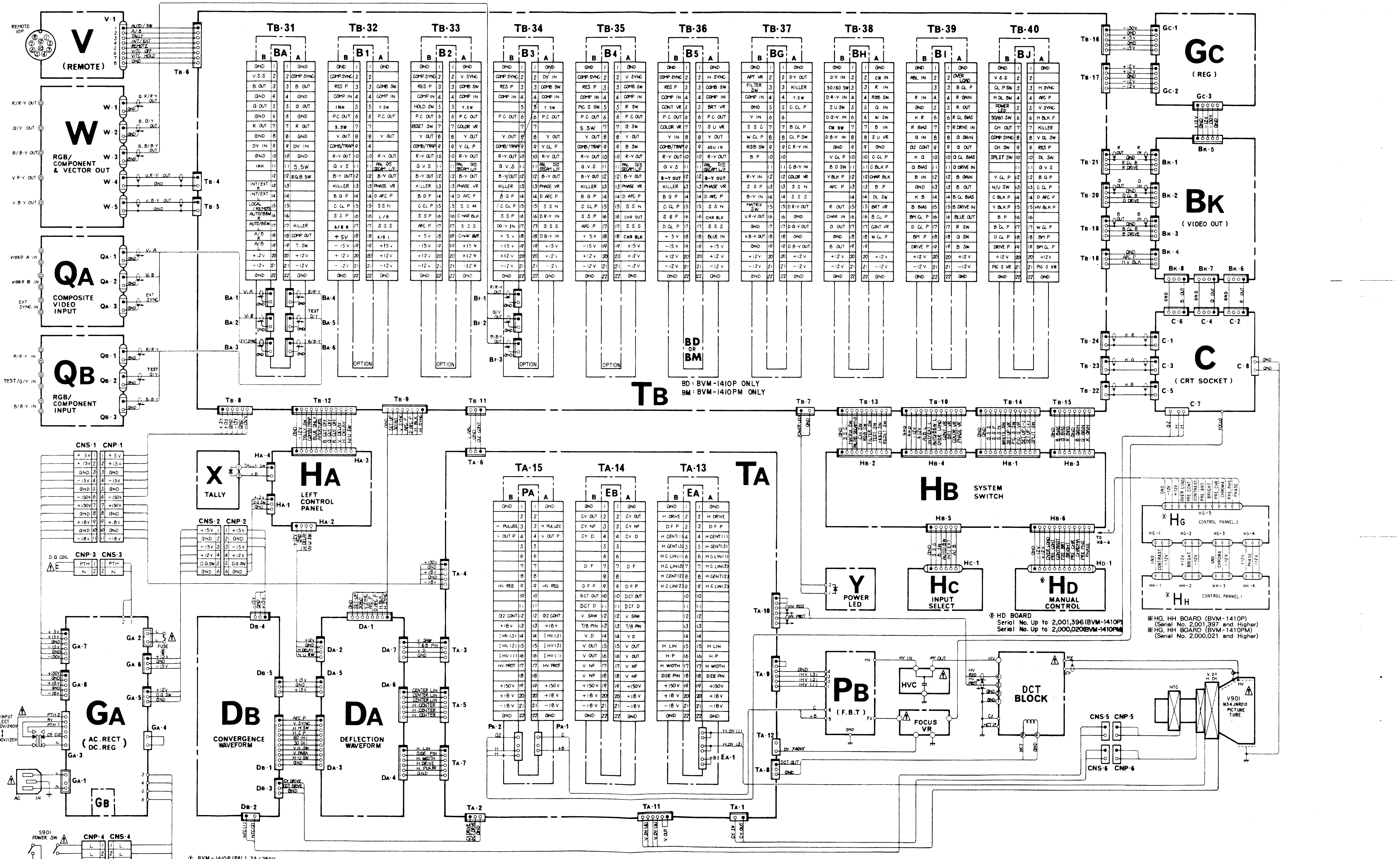

TP2
D AFC P
RV3
H DELAY
P WIDTH
RV2
H DELAY
POSITION

# SECTION 5
# DIAGRAMS

## 5-1. BLOCK DIAGRAM
## SIGNAL PROCESSING BLOCK DIAGRAM


COMPOSITE VIDEO/Y
VIDEO A
VIDEO B
EXT. SYNC
VIDEO & SYNC INPUTS
QA, BA
TEST /G/Y
R/R-Y
TEST /G/Y
B/B-Y
TEST & COMPONENT & RGB INPUTS
QB, BA
PAL DECODER
BD
PAL-M DECODER
BM
BD (BVM-1410P)
BM (BVM-1410PM)
Y
R-Y
B-Y
APERTURE CONTROL Y DELAY
BG
OPTION
OTHER DECODERS
BC, BE
R-Y
B-Y
COLOR GAIN CONTROL
BG
R-Y
G-Y
B-Y
Y
Y. COLOR DEFFERENTIAL RGB SIGNAL SWITCHING
BH
R G B
R
G
B
CONTRAST BRIGHTNESS CONTROL
BH
DRIVE CONTROL
BI
VIDEO OUT AMP
BK
BEAM CURRENT CONTROL
BI
RED GI
GREEN GI
BLUE GI
RED K
GREEN K
BLUE K
CRT
R-Y
B-Y
COMPONENT
BG
R-Y
B-Y
VECTOR OUT
BG, V
OPTION
DECODE OUT
RGB/ COMPONENT
BF, V
SYNC SELECT & SYNC SEP.
BA
COMP SYNC
V SYNC
SYNC PRO. & PULSE GEN
BJ
CONTROL PULSES
TO Bc~Bk
VECTOR OUT
R-Y
B-Y
DECODE OUT
R/R-Y
G/Y
B/B-Y

## 5-2. FRAME WIRING DIAGRAM


V
(REMOTE)
REMOTE 10P
V·1
W
RGB/ COMPONENT & VECTOR OUT
W·1
W·2
W·3
W·4
W·5
R/R-Y OUT
G/Y OUT
B/B-Y OUT
V.R-Y OUT
V.B-Y OUT
QA
COMPOSITE VIDEO INPUT
VIDEO A IN
VIDEO B IN
EXT SYNC IN
QA·1
QA·2
QA·3
QB
RGB/ COMPONENT INPUT
R/R-Y IN
TEST/G/Y IN
B/B-Y IN
QB·1
QB·2
QB·3
TB·31
TB·32
TB·33
TB·34
TB·35
TB·36
TB·37
TB·38
TB·39
TB·40
BA
B1
B2
B3
B4
B5
BG
BH
BI
BJ
BA·1
BA·2
BA·3
BA·4
BA·5
BA·6
BF·1
BF·2
BF·3
OPTION
BD OR BM
BD: BVM-1410P ONLY
BM: BVM-1410PM ONLY
TB
TB·4
TB·5
TB·6
TB·7
TB·8
TB·9
TB·10
TB·11
TB·12
TB·13
TB·14
TB·15
TB·16
TB·17
TB·18
TB·19
TB·20
TB·21
TB·22
TB·23
TB·24
GC
(REG)
GC·1
GC·2
GC·3
BK
(VIDEO OUT)
BK·1
BK·2
BK·3
BK·4
BK·5
BK·6
BK·7
BK·8
C
(CRT SOCKET)
C·1
C·2
C·3
C·4
C·5
C·6
C·7
C·8
X
TALLY
HA
LEFT CONTROL PANEL
HA·1
HA·2
HA·3
HA·4
HB
SYSTEM SWITCH
HB·1
HB·2
HB·3
HB·4
HB·5
HB·6
HC
INPUT SELECT
HC·1
*HD
MANUAL CONTROL
HD·1
*HG
CONTROL PANNEL.2
HG-1
HG-2
HG-3
HG-4
HG-5
*HH
CONTROL PANNEL.1
HH-1
HH-2
HH-3
HH-4
Y
POWER LED
TA
TA·1
TA·2
TA·3
TA·4
TA·5
TA·6
TA·7
TA·8
TA·9
TA·10
TA·11
TA·12
TA·13
TA·14
TA·15
PA
EB
EA
PA·1
PA·2
EA·1
PB
(F.B.T)
HVC
FOCUS VR
DCT BLOCK
V901
M34JNR21X PICTURE TUBE
NTC
V.DY
H DY
CNS·5
CNP·5
CNS·6
CNP·6
DB
CONVERGENCE WAVEFORM
DB·1
DB·2
DB·3
DB·4
DB·5
DA
DEFLECTION WAVEFORM
DA·1
DA·2
DA·3
DA·4
DA·5
DA·6
DA·7
GA
(AC.RECT / DC.REG)
GA·1
GA·2
GA·3
GA·4
GA·5
GA·6
GA·7
GA·8
GB
FUSE
AC INPUT SELECT
AC 220V/240V
AC 100V/120V
AC IN
CNS·1
CNP·1
CNS·2
CNP·2
CNS·3
CNP·3
D.G COIL
S901 POWER SW
CNP·4
CNS·4

※ HD BOARD
Serial No. Up to 2,001,396 (BVM-1410P)
Serial No. Up to 2,000,020 (BVM-1410PM)

※ HG, HH BOARD (BVM-1410P)
(Serial No. 2,001,397 and Higher)
※ HG, HH BOARD (BVM-1410PM)
(Serial No. 2,000,021 and Higher)

※ BVM-1410P (PAL) 2A/250V
BVM-1410PM (PAL-M) 4A/125V

## 5-3. MOUNTING AND SCHEMATIC DIAGRAMS

**Note:**

**Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.**

- All capacitors are in $\mu$F unless otherwise noted. p : $\mu\mu$F 50 WV or less are not indicated except for electrolytics.
- All resistor are in ohms, 1/2W on the C board and 1/4W on the rest of the boards unless otherwise specified.
  k$\Omega$ = 1000$\Omega$, M$\Omega$ = 1000k$\Omega$
- ▭ : nonflammable resistor.
- Δ : internal component.
- ⏚ : direct connection to points marked ⏚ on the chassis
- ☐ : panel designation.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- The components identified by ⧓ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.
  When replacing components identified by ◪, make the necessary adjustments indicated. If results do not meet the specified value, change the component identified by ⧓ and repeat the adjustment until the specified value is achieved.
  Refer to R52, R53, R67, R68, R124, R126, R222, R227, R228 and R239.
  Adjust on page 4-11 — 4-16.
  When replacing the part in below table, be sure to perform the related adjustment.

**Reference information**

| | | |
|---|---|---|
| RESISTOR | : RN | METAL FILM |
| | : RC | SOLID |
| | : FPRD | NONFLAMMABLE CARBON |
| | : FUSE | NONFLAMMABLE FUSIBLE |
| | : RS | NONFLAMMABLE WIREWOUND |
| | : RB | NONFLAMMABLE CEMENT |
| COIL | : LF-8L | MICRO INDUCTOR |
| CAPACITOR | : TA | TANTALUM |
| | : PS | STYROL |
| | : PP | POLYPROPYLENE |
| | : PT | MYLAR |
| | : MPS | METALIZED POLYESTER |
| | : MPP | METALIZED POLYPROPYLENE |
| | : ALB | BIPOLAR |
| | : ALT | HIGH TEMPERATURE |
| | : AIR | HIGH RIPPLE |

| **Part replaced ( ◪ )** | **Adjustment ( ⧓ )** |
|---|---|
| C59, IC3, R67, R68, R78,<br>RV2 . . . (GA board) | +B MAX<br>(R67, R68) Page 4-11. |
| Q13, Q14, R52, R53<br>(GA board)<br>D5, D6, D7, D8, Q3, Q4,<br>Q5, R4, R5, R19, R20,<br>R21, R22 . . . (GB board) | +B PROTECTER<br>(R52, R53)<br>Page 4-11. |
| D216, IC1, IC4, R123,<br>R124, R125, R126, R136,<br>R137, R138, R203, R204,<br>RV1 . . . (PA board)<br>DCT BLOCK | HV REG<br>(R124, R126)<br>Page 4-16. |
| D205, D207, D214, D215,<br>IC2, R201, R202, R213,<br>R214, R225, R226, R227,<br>R228, R229, R230, R243<br>(PA board)<br>DCT BLOCK | HV HOLD DOWN<br>(R227, R228)<br>Page 4-14 ~ 4-15. |
| D205, D206, D215, IC2,<br>R201, R202, R213, R214,<br>R220, R221, R222, R223,<br>R224, R242 . . . (PA board)<br>FBT, R1, R2 . . . . . . . .<br>(PB board) | BEAM CURRENT<br>PROTECTOR-1<br>(R222)<br>Page 4-15. |
| D204, D216, IC3, R203,<br>R204, R231, R232, R237,<br>R238, R239, R240, R241,<br>R247 . . . (PA board)<br>FBT, R3, R4 . . . . . . . .<br>(PB board) | BEAM CURRENT<br>PROTECTOR-2<br>(R239)<br>Page 4-16. |

- Voltages are dc with respect to ground unless otherwise noted.
- **Voltage variations may be noted due to normal production tolerances.**
- Reading are taken with a 10 M$\Omega$ digital multimeter.
- ☐: adjustment for repair.
- ——— : B+ bus.
- – – –: B– bus.
- **Circled numbers are waveform references.**
- **✕ : Can not be measured.**
- **Readings and waveforms are taken with a color-bar signal input and with a 75$\Omega$. terminator connected to an open terminal.**

- Switches and controls are set as follows unless otherwise noted.

FRONT PANEL (R)

| | | | |
|---|---|---|---|
| 1. | INPUT selector . . . . . . . . . . . | A | HC board |
| 2. | SYNC selector . . . . . . . . . . . | INT | |
| 3. | MODE selector . . . . . . . . . . . | AUTO | |
| 4. | CONTRAST MANUAL switch . . | PRESET | HG board<br>(HD board) |
| 5. | BRIGHTNESS MANUAL switch . | PRESET | |
| 6. | CHROMA MANUAL switch . . . | PRESET | |
| 7. | PHASE MANUAL switch . . . . . | PRESET | |

FRONT PANEL (L)

| | | | |
|---|---|---|---|
| 8. | SCAN MODE switch | | HA board |
| | ▣ UNDER SCAN . . . . . . . . . | NOR | |
| | ◫ H. DELAY . . . . . . . . . . . | NOR | |
| | ⊟ V. DELAY . . . . . . . . . . . | NOR | |
| 9. | SCREEN switch (R) . . . . . . . . | NOR | |
| 10. | SCREEN switch (G) . . . . . . . . | NOR | |
| 11. | SCREEN switch (B) . . . . . . . . | NOR | |
| 12. | APT switch . . . . . . . . . . . . . | NOR | |
| 13. | BLUE ONLY switch . . . . . . . . | NOR | |
| 14. | COMB/TRAP filter selector . . . . | TRAP | |

SUB CONTROL PANEL

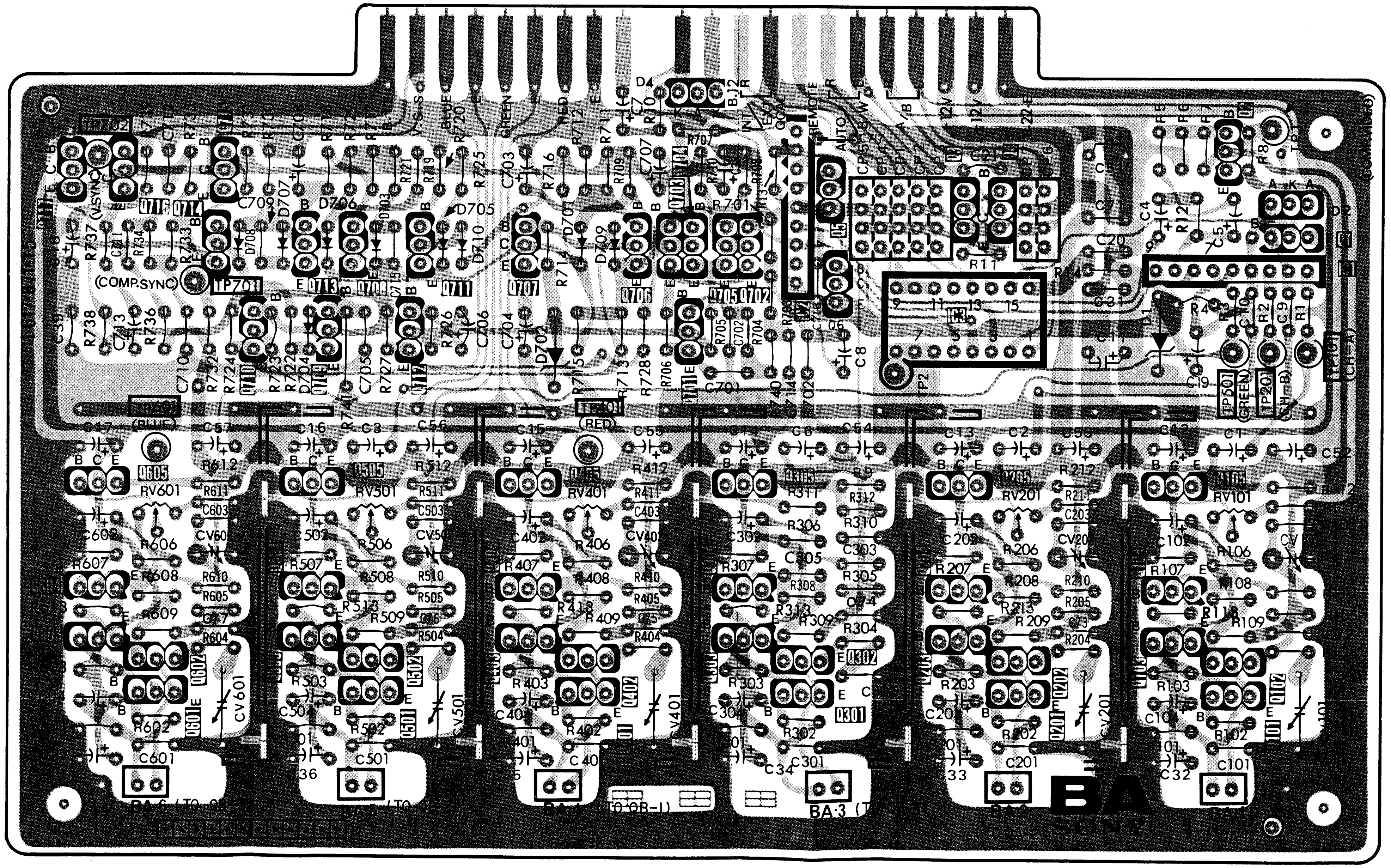
| | | | |
|---|---|---|---|
| 15. | INPUT SELECT buttons . . . . . | B | HB board |
| 16. | COLOR STANDARD buttons . . | NTSC | |
| 17. | FILTER switch . . . . . . . . . . . | OFF | |
| 18. | MATRIX switch . . . . . . . . . . | OFF | |
| 19. | PAL/SECAM mode selector . . . . | D(L) | |
| 20. | WHITE/OPERATE/SET UP selector . . . . . . . . . . . . . . . | OPERATE | |
| 21. | SPRIT SCREEN switch . . . . . . | OFF | |
| 22. | CROSS HATCH switch . . . . . . | OFF | |
| 23. | VITC switch . . . . . . . . . . . . | OFF | |
| 24. | PIC. SET UP switch . . . . . . . . | OFF | |
| 25. | AFC switch . . . . . . . . . . . . . | 2m sec | DA board |

Note:

- ░ : Conductor side pattern
- ▓ : Component side pattern

**BA board (SYNC SELECT & SYNC SEP, HOOK UP)**

| | |
|---|---|
| IC | 2 3 1 |
| Q | 717 605 604 603 716 602 601 715 714 710 713 505 504 503 709 708 502 501 712 711 707 405 404 403 402 401 706 704 703 701 705 305 304 303 702 302 301 5 3 205 204 203 4 202 201 105 104 103 2 102 101 1 |
| D | 708 707 706 704 703 705 710 702 101 709 4 1 2 |
| TP<br>ADJ | TP702 TP601 RV601 CV602 CV601 TP701 RV501 CV502 CV501 TR401 RV401 CV402 CV401 TP2 RV201 CV202 CV201 TP501 RV101 TP1 TP201 CV102 CV101 TP101 |

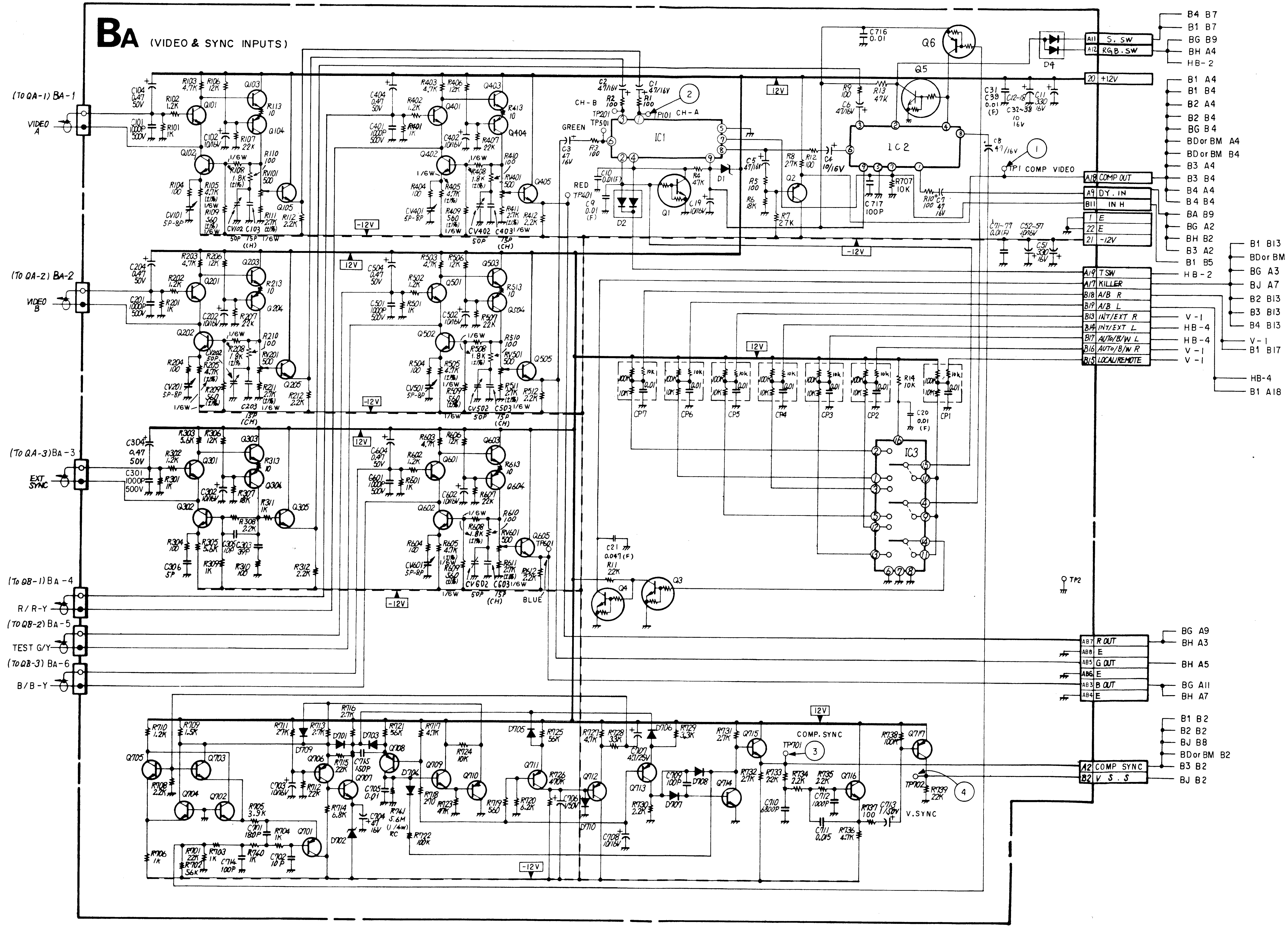


TP702
(V.SYNC)
(COMP.SYNC)
TP701
TP601
(BLUE)
TR401
(RED)
TP501
(GREEN)
TP201
(CH-B)
TP101
(CH-A)
TP1
(COMP.VIDEO)
BLUE
GREEN
RED
V.S-S
INT
EXT
REMOTE
AUTO
D4
D1
D2
IC1
IC2
IC3
Q605
Q505
Q405
Q305
Q205
Q105
RV601
RV501
RV401
RV201
RV101
CV601
CV501
CV401
CV201
C601
C501
C201
C101
BA-6
BA-5
BA-4
BA-3
BA-2
BA-1
BA
SONY

● ▨: Conductor side pattern

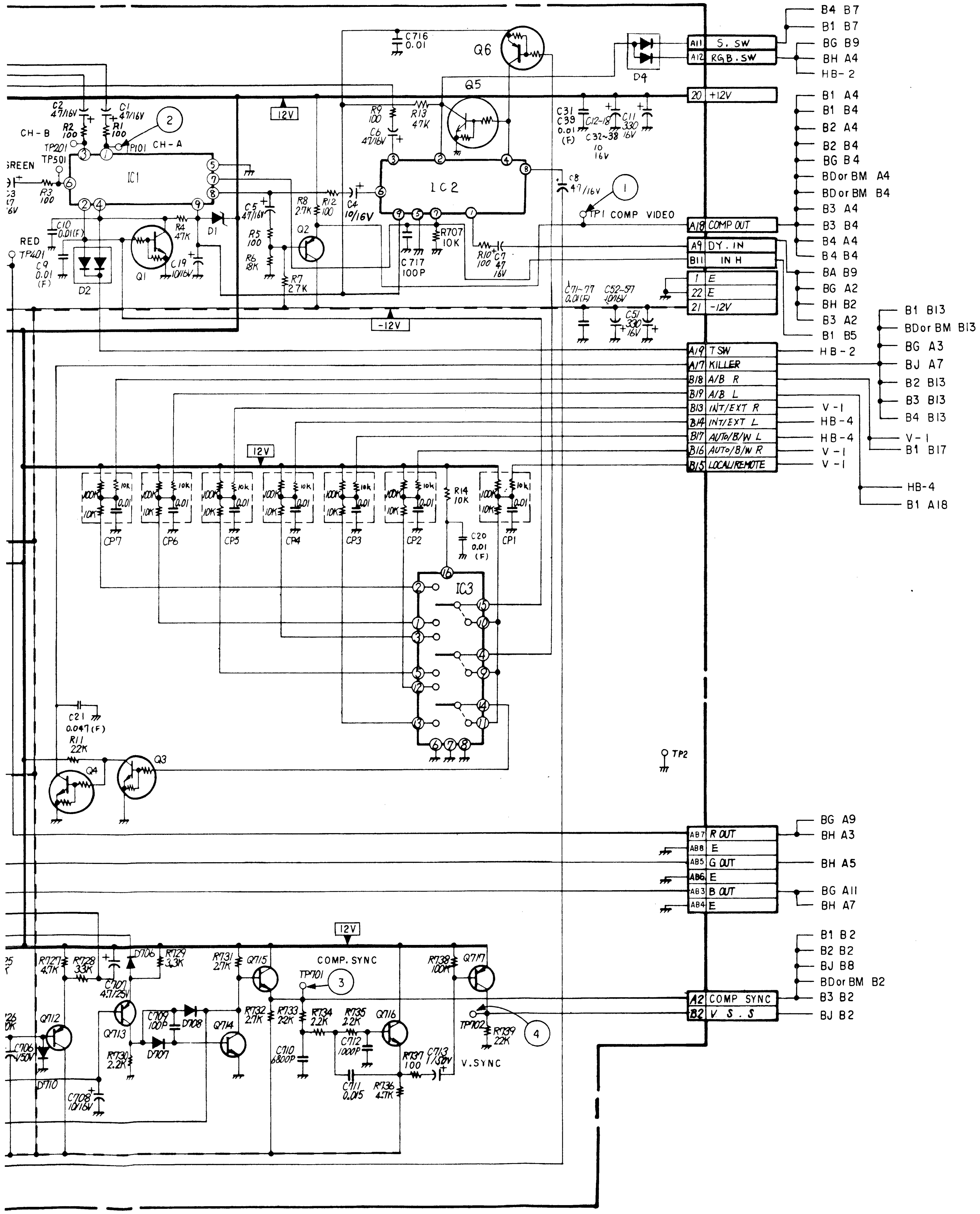
● ▨: Component side pattern

**BA board (SYNC SELECT & SYNC SEP, HOOK UP)**


BA (VIDEO & SYNC INPUTS)
(TO QA-1) BA-1
VIDEO A
(TO QA-2) BA-2
VIDEO B
(TO QA-3) BA-3
EXT SYNC
(TO QB-1) BA-4
R/R-Y
(TO QB-2) BA-5
TEST G/Y
(TO QB-3) BA-6
B/B-Y
IC1
IC2
IC3
Q1
Q2
Q3
Q4
Q5
Q6
D1
D2
D4
CH-B
CH-A
GREEN
RED
BLUE
TP1 COMP VIDEO
TP2
COMP. SYNC
V. SYNC
12V
-12V
CP1
CP2
CP3
CP4
CP5
CP6
CP7
A11 S. SW
A12 RGB. SW
20 +12V
A18 COMP OUT
A9 DY. IN
B11 IN H
1 E
22 E
21 -12V
A19 TSW
A17 KILLER
B18 A/B R
B19 A/B L
B13 INT/EXT R
B14 INT/EXT L
B17 AUTO/B/W L
B16 AUTO/B/W R
B15 LOCAL/REMOTE
AB7 R OUT
AB8 E
AB5 G OUT
AB6 E
AB3 B OUT
AB4 E
A2 COMP SYNC
B2 V. S. S
B4 B7
B1 B7
BG B9
BH A4
HB-2
B1 A4
B1 B4
B2 A4
B2 B4
BG B4
BD or BM A4
BD or BM B4
B3 A4
B3 B4
B4 A4
B4 B4
BA B9
BG A2
BH B2
B3 A2
B1 B5
HB-2
B1 B13
BD or BM B13
BG A3
BJ A7
B2 B13
B3 B13
B4 B13
V-1
HB-4
HB-4
V-1
V-1
V-1
B1 B17
HB-4
B1 A18
BG A9
BH A3
BH A5
BG A11
BH A7
B1 B2
B2 B2
BJ B8
BD or BM B2
B3 B2
BJ B2

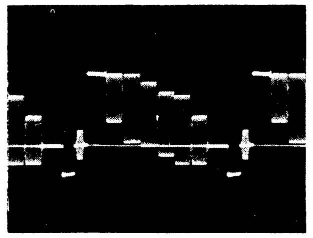
BA BO

| IC1 |
|---|
| 2 |
| 3 |
| |
| |
| Q1 |
| 2 |
| 3 |
| 4 |
| 5 |
| 6 |
| 10 |
| 10 |
| 10 |
| 10 |
| 10 |
| 20 |
| 20 |
| 20 |
| 20 |
| 20 |
| 30 |
| 30 |
| 30 |
| 30 |
| 30 |
| 40 |
| 40 |
| 40 |
| 40 |
| 40 |
| 501 |
| 50 |
| 50 |
| 504 |
| 50 |
| 601 |
| 60 |

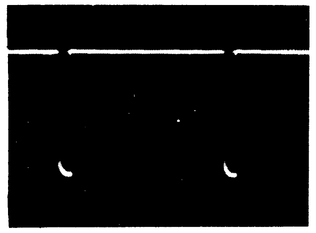

CH-B
CH-A
GREEN
RED
TP201
TP501
TP401
P101
IC1
IC2
IC3
Q1
Q2
Q3
Q4
Q5
Q6
D1
D2
D4
C716 0.01
12V
-12V
TP1 COMP VIDEO
CP1
CP2
CP3
CP4
CP5
CP6
CP7
R14 10K
C20 0.01 (F)
C21 0.047(F)
R11 22K
TP2
A11 S.SW
A12 RGB.SW
20 +12V
A18 COMP OUT
A9 DY.IN
B11 IN H
1 E
22 E
21 -12V
A19 TSW
A17 KILLER
B18 A/B R
B19 A/B L
B13 INT/EXT R
B14 INT/EXT L
B17 AUTO/B/W L
B16 AUTO/B/W R
B15 LOCAL/REMOTE
AB7 R OUT
AB8 E
AB5 G OUT
AB6 E
AB3 B OUT
AB4 E
A2 COMP SYNC
B2 V.S.S
COMP. SYNC
V.SYNC
TP701
TP702
Q712
Q713
Q714
Q715
Q716
Q717
D706
D707
D708
D710
B4 B7
B1 B7
BG B9
BH A4
HB-2
B1 A4
B1 B4
B2 A4
B2 B4
BG B4
BD or BM A4
BD or BM B4
B3 A4
B3 B4
B3 A4
B4 B4
BA B9
BG A2
BH B2
B3 A2
B1 B5
B1 B13
BD or BM B13
BG A3
BJ A7
B2 B13
B3 B13
B4 B13
V-1
HB-4
B1 B17
B1 A18
BG A9
BH A3
BH A5
BG A11
BH A7
B1 B2
B2 B2
BJ B8
BD or BM B2
B3 B2
BJ B2

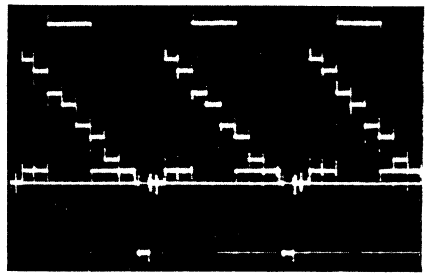
BA BOARD

| | | |
|---|---|---|
| IC1 | CX894 | INPUT SELECT |
| 2 | CX894 | SYNC SELECT |
| 3 | MC14053BCP | LOCAL/REMOTE SW |
| | | |
| | | |
| Q1 | DTC144ES | INPUT SELECT CONTROL |
| 2 | 2SA844 | BUFF |
| 3 | DTC144ES | KILLER |
| 4 | DTC144ES | KILLER |
| 5 | DTC144ES | SYNC SELECT CONTROL |
| 6 | DTA144ES | INT/EXT CONTROL |
| 101 | 2SC2668 | VIDEO A AMP |
| 102 | 2SC2668 | VIDEO A AMP |
| 103 | 2SC2668 | VIDEO A AMP |
| 104 | 2SA844 | VIDEO A AMP |
| 105 | 2SC2668 | VIDEO A AMP |
| 201 | 2SC2668 | VIDEO B AMP |
| 202 | 2SC2668 | VIDEO B AMP |
| 203 | 2SC2668 | VIDEO B AMP |
| 204 | 2SA844 | VIDEO B AMP |
| 205 | 2SC2668 | VIDEO B AMP |
| 301 | 2SC2668 | EXT SYNC AMP |
| 302 | 2SC2668 | EXT SYNC AMP |
| 303 | 2SC2668 | EXT SYNC AMP |
| 304 | 2SA844 | EXT SYNC AMP |
| 305 | 2SC2668 | EXT SYNC AMP |
| 401 | 2SC2668 | R-Y/R AMP |
| 402 | 2SC2668 | R-Y/R AMP |
| 403 | 2SC2668 | R-Y/R AMP |
| 404 | 2SA844 | R-Y/R AMP |
| 405 | 2SC2668 | R-Y/R AMP |
| 501 | 2SC2668 | TEST/Y/G AMP |
| 502 | 2SC2668 | TEST/Y/G AMP |
| 503 | 2SC2668 | TEST/Y/G AMP |
| 504 | 2SA844 | TEST/Y/G AMP |
| 505 | 2SC2668 | TEST/Y/G AMP |
| 601 | 2SC2668 | B-Y/B AMP |
| 602 | 2SC2668 | B-Y/B AMP |
| Q603 | 2SC2668 | B-Y/B AMP |
| 604 | 2SA844-E | B-Y/B AMP |
| 605 | 2SC2668 | B-Y/B AMP |
| 701 | 2SA1048 | SYNC AGC |
| 702 | 2SC2785 | SYNC AGC |
| 703 | 2SC2785 | SYNC AGC |
| 704 | 2SC2785 | SYNC AGC |
| 705 | 2SC2785 | SYNC AGC |
| 706 | 2SA1115 | SYNC AGC |
| 707 | 2SC3068 | SYNC AGC |
| 708 | 2SA1115 | SYNC AGC |
| 709 | 2SC2785 | SYNC AGC |
| 710 | 2SA1115 | SYNC AGC |
| 711 | 2SA1115 | SYNC AGC |
| 712 | 2SA1115 | SYNC AGC |
| 713 | 2SA1115 | COMP SYNC SEP |
| 714 | 2SC2785 | COMP SYNC SEP |
| 715 | 2SC3068 | COMP SYNC SEP |
| 716 | 2SC3068 | V SYNC SEP |
| 717 | 2SA1115 | V SYNC SEP |
| | | |
| D1 | RD3.0E-B | +9V REG |
| 2 | MC921 | INPUT SELECT CONTROL |
| 4 | MC911 | SYNC SELECT CONTROL |
| 701 | 1SS119 | SYNC AGC |
| 702 | RD4.3E-B | -7.5V REG |
| 703 | 1SS119 | SYNC AGC |
| 704 | 1SS119 | SYNC AGC |
| 705 | 1SS119 | SYNC AGC |
| 706 | 1SS119 | SYNC AGC |
| 707 | 1SS119 | COMP SYNC SEP |
| 708 | 1SS119 | COMP SYNC SEP |
| 709 | 1SS119 | SYNC AGC |
| 710 | 1SS119 | SYNC AGC |
| | | |

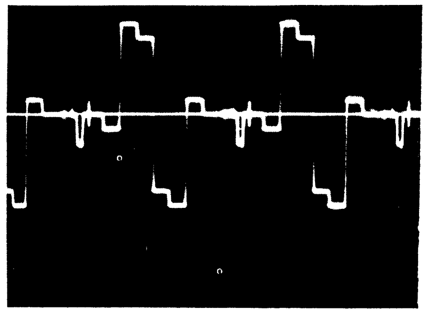

① 1Vp-p (H)
② 1Vp-p (H)

④ 12Vp-p (V)

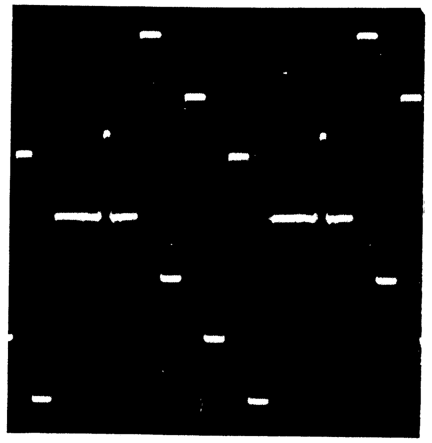

③ 11Vp-p (H)



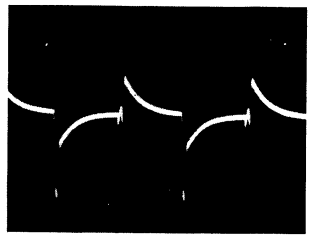
① 1Vp-p (H)



② 0.3Vp-p ④ 0.32Vp-p
③ 0.32Vp-p ⑤ 0.36Vp-p



⑥ 0.38Vp-p ⑧ 0.39Vp-p
⑦ 0.38Vp-p ⑨ 0.42Vp-p

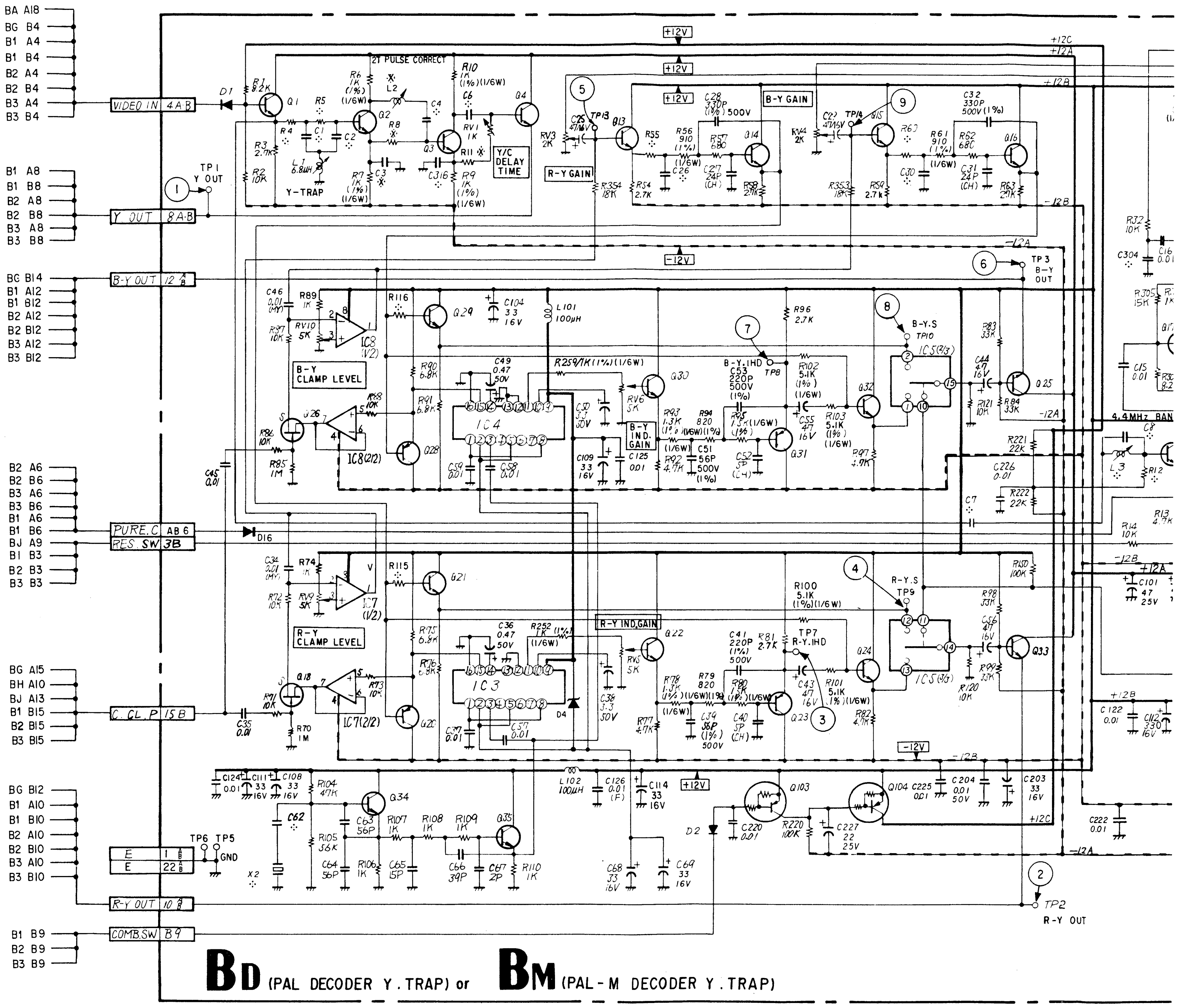


⑩ 0.26Vp-p (H)
⑪ 0.26Vp-p (H)

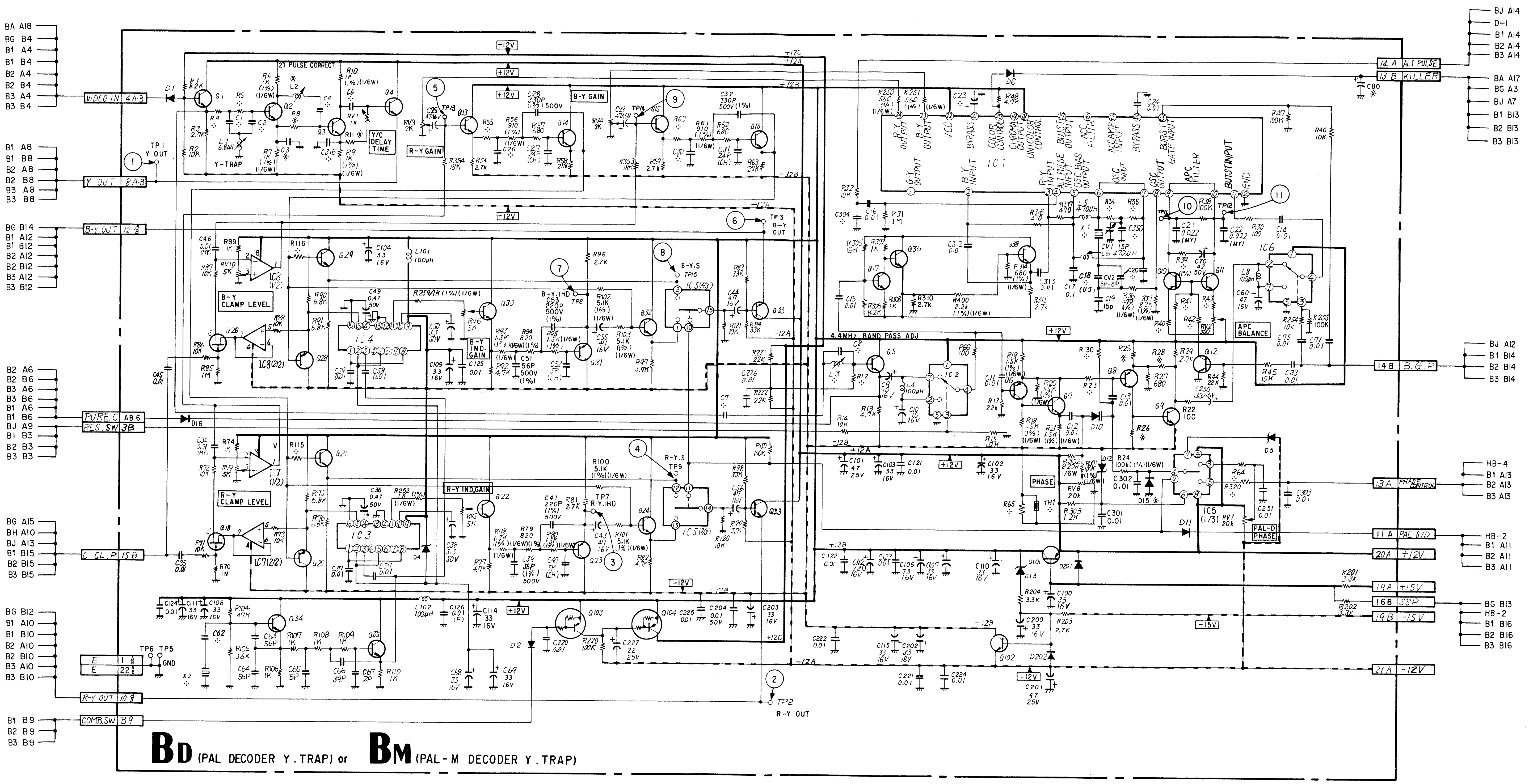
∴NOTE

| Ref \ Model | BD (PAL) | BM (PAL-M) |
|---|---|---|
| C1 | 10P 0.5P 50V | 15P 5% 50V |
| C2 | 10P 0.5P 50V | 15P 5% 50V |
| C3 | 33PF 5% 50V | ——— |
| C4 | 47P 5% 50V | 39P 5% 50V |
| C6 | 68P 5% 50V | 56P 5% 50V |
| C7 | 33P 5% 50V | 39P 5% 50V |
| C8 | 6P 0.5P 50V | 2P 0.25P 50V |
| C20 | 68P 5% (UJ) 50V | 56P 5% (UJ) 50V |
| C23 | ELECT<br>1 20% 50V | FILM<br>0.01 5% 50V |
| C26 | 160P 1% 500V | 130P 1% 500V |
| C30 | 160P 1% 500V | 130P 1% 500V |
| C62 | 24P 5% 50V | JW |
| C80 | ——— | 1 20% 50V |
| C304 | 10P 0.5P 50V | ——— |
| C316 | 2P 0.25P 50V | 10P 0.5P 50V |
| C350 | 33P 5% (UJ) 50V | 22P 5% (UJ) 50V |
| D15 | ——— | 1SS119 |
| L3 | 33μH | 68μH |
| R4 | 1.5K 1% 1/6W | 1K 1% 1/6W |
| R5 | 82 1% 1/6W | 110 1% 1/6W |
| R8 | 1.2K 1% 1/6W | 1.8K 1% 1/6W |
| R11 | 56 1% 1/6W | 130 1% 1/6W |
| R12 | 1.8K 1% 1/6W | 2.2K 1% 1/6W |
| R23 | 6.8K 1% 1/6W | 5.6K 1% 1/6W |
| R28 | 1.8K 5% 1/4W | 3.3K 5% 1/4W |
| R34 | 270 1% 1/6w | 680 1% 1/6W |
| R35 | 270 1% 1/6W | 680 1% 1/6W |
| R40 | 1K 1% 1/6W | 1K 5% 1/4W |
| R41 | 2.2K 1% 1/6W | 2.2K 5% 1/6W |
| R42 | 10K 1% 1/6W | 10K 5% 1/4W |
| R43 | 1K 1% 1/6W | 1K 5% 1/4W |
| R55 | 750 1% 1/6W | 910 1% 1/6W |
| R60 | 750 1% 1/6W | 910 1% 1/6W |
| R64 | 220K 1% 1/6W | 1K 5% 1/4W |
| R65 | 3.9K 1% 1/6W | 2.2K 1% 1/6W |
| R115 | 5.1K 1% 1/6W | 2.2K 1% 1/6W |
| R116 | 5.1K 1% 1/6W | 2.2K 1% 1/6W |
| R130 | 220K 1% 1/6W | 470K 1% 1/6W |
| R320 | 130 K 1% 1/6W | 360k 1% 1/6W |
| TH1 | ——— | THERMISTOR 10K |
| X1 | 4.43MHz | 3.58MHz |
| X2 | 10.64MHz | 10.717MHz |
| R25 | 6.8K 5% 1/4W | 4.7K 5% 1/4W |
| R26 | 680 5% 1/4W | 1.2K 5% 1/4W |
| R39 | 1.5K 1% 1/6W | 2.2K 1% 1/6W |
| C18 | 13PF 5% 50W | 15PF 5% 50V |
| L2 | 1-408-532-00 | 1-408-514-00 |

**BD board** (PAL DECODER Y. TRAP)
**BM board** (PAL-M DECODER Y. TRAP)

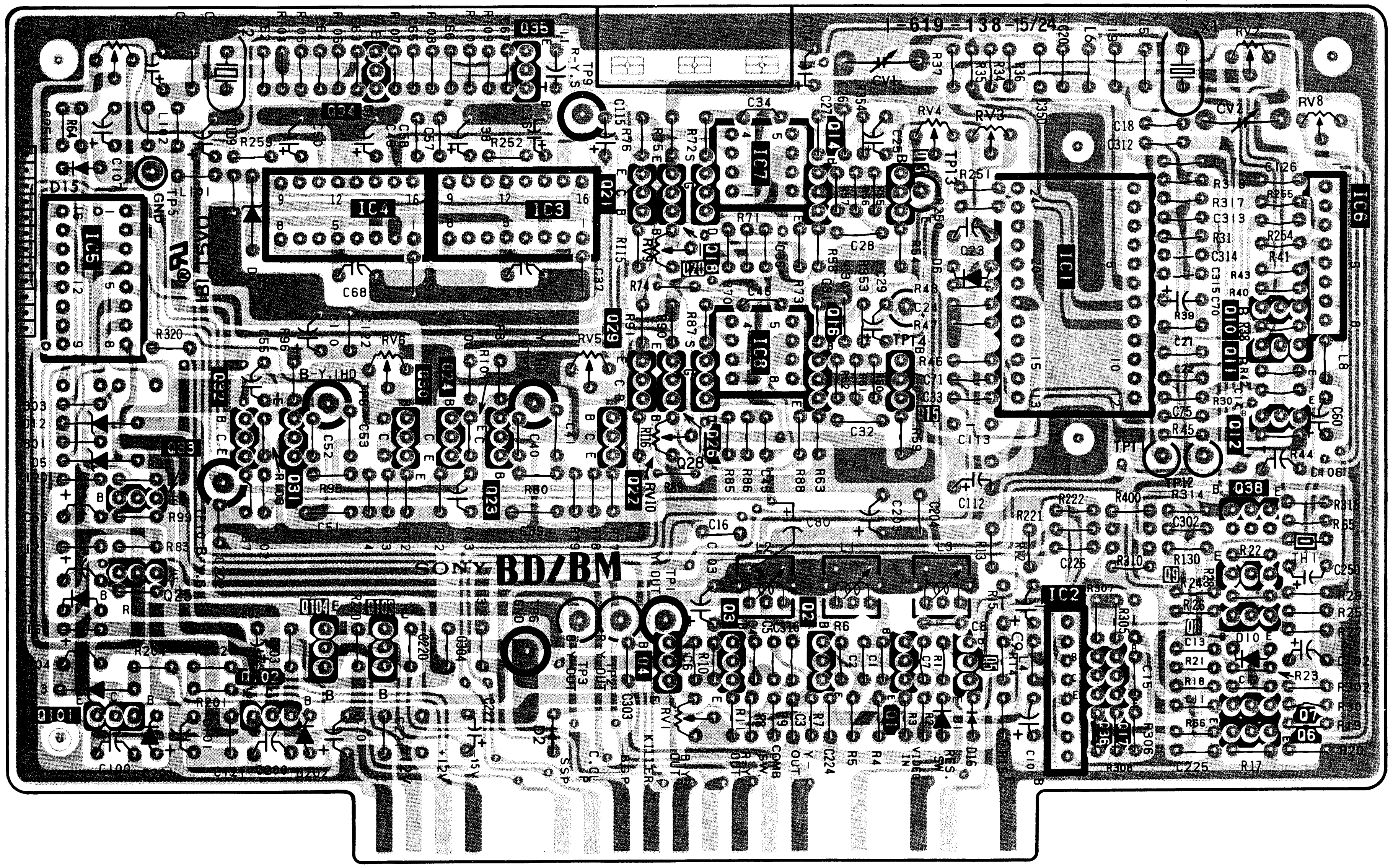

VIDEO IN 4A·B
Y OUT 8A·B
B-Y OUT 12 A·B
PURE.C AB 6
RES SW 3B
C CL P 15 B
E 1
E 22
R-Y OUT 10 B
COMB.SW B9
TP1 Y OUT
Y-TRAP
2T PULSE CORRECT
Y/C DELAY TIME
R-Y GAIN
B-Y GAIN
TP3 B-Y OUT
B-Y CLAMP LEVEL
R-Y CLAMP LEVEL
B-Y IND. GAIN
R-Y IND.GAIN
B-Y.IHD TP8
B-Y.S TP10
R-Y.S TP9
TP7 R-Y.IHD
IC4
IC3
IC5
IC7
IC8
TP6 TP5 GND
TP2 R-Y OUT
+12V
-12V
4.4MHz BAN
BD (PAL DECODER Y. TRAP) or BM (PAL-M DECODER Y. TRAP)

**BD board (PAL DECODER Y. TRAP)**
**BM board (PAL-M DECODER Y. TRAP)**


BA A18
BG B4
B1 A4
B1 B4
B2 A4
B2 B4
B3 A4
B3 B4
VIDEO IN 4 A.B
B1 A8
B1 B8
B2 A8
B2 B8
B3 A8
B3 B8
Y OUT 8 A.B
TP1 Y OUT
BG B14
B1 A12
B1 B12
B2 A12
B2 B12
B3 A12
B3 B12
B-Y OUT 12 A B
B2 A6
B2 B6
B3 A6
B3 B6
B1 A6
B1 B6
BJ A9
B1 B3
B2 B3
B3 B3
PURE.C AB 6
RES.SW 3B
BG A15
BH A10
BJ A13
B1 B15
B2 B15
B3 B15
C.CL.P 15B
BG B12
B1 A10
B1 B10
B2 A10
B2 B10
B3 A10
B3 B10
E 1 A B
E 22 A B
TP6 TP5 GND
R-Y OUT 10 A B
B1 B9
B2 B9
B3 B9
COMB.SW B9
+12V
-12V
2T PULSE CORRECT
Y-TRAP
Y/C DELAY TIME
R-Y GAIN
B-Y GAIN
B-Y CLAMP LEVEL
R-Y CLAMP LEVEL
B-Y IND. GAIN
R-Y IND.GAIN
B-Y.IHD TP8
R-Y.IHD TP7
B-Y.S TP10
R-Y.S TP9
TP3 B-Y OUT
TP2 R-Y OUT
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
4.4MHz BAND PASS ADJ
PHASE
APC BALANCE
PAL-D PHASE
R-Y OUTPUT
B-Y OUTPUT
VCC
BYPASS
COLOR CONTROL
CHROMA OUTPUT
UNICOLOR CONTROL
BURST OUTPUT
ACC FILTER
ACCAMP INPUT
BYPASS
BURST GATE INPUT
G-Y OUTPUT
B-Y INPUT
R-Y INPUT
ALT.PULSE INPUT
OSC BIAS OUTPUT
OSC INPUT
OSC OUTPUT
APC FILTER
BURST INPUT
GND
14 A ALT PULSE
13 B KILLER
14 B B.G.P
13 A PHASE CONTROL
11 A PAL S/D
20 A +12V
19 A +15V
16 B SSP
19 B -15V
21 A -12V
BJ A14
D-1
B1 A14
B2 A14
B3 A14
BA A17
BG A3
BJ A7
B1 B13
B2 B13
B3 B13
BJ A12
B1 B14
B2 B14
B3 B14
HB-4
B1 A13
B2 A13
B3 A13
HB-2
B1 A11
B2 A11
B3 A11
BG B13
HB-2
B1 B16
B2 B16
B3 B16
BD (PAL DECODER Y.TRAP) or BM (PAL-M DECODER Y.TRAP)

BD board (PAL DECODER Y. TRAP)
BM board (PAL-M DECODER Y. TRAP)

| | |
|---|---|
| IC | 5 4 3 7 1 6<br>8 2 |
| Q | 10<br>34 35 11<br>12<br>21 20 18 14 13 38<br>29 28 26 16 15 9<br>33 32 31 30 24 23 22 8<br>25 7<br>101 102 104 103 4 3 2 1 5 36,17 6 |
| D | 15 4 6<br>12<br>11 5<br>13 10<br>201 202 2 1 16 |
| ADJ · TP | RV7 CV1 RV2<br>TP5 TP9 RV4 RV3 CV2 RV8<br>TP13<br>RV9 TP14<br>RV6 RV5<br>TP8 TP7 RV10<br>TP3 TP2 TP1 TP11 TP12<br>TP10 TP6<br>RV1 |

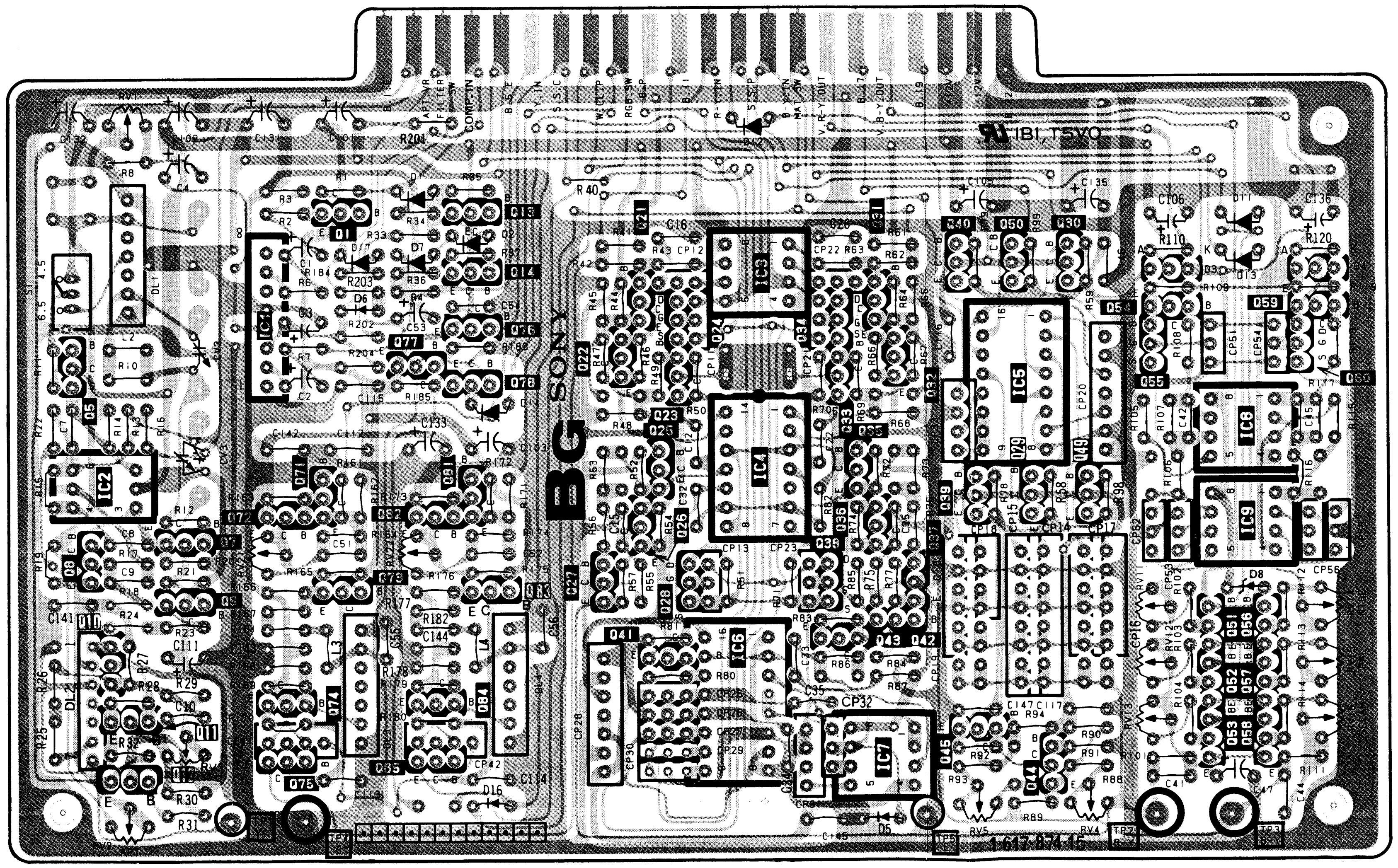


| | | |
|---|---|---|
| IC1 | TA7193P | PAL DEMODULATOR |
| 2 | LA7016 | RESIDUAL SWITCH |
| 3 | TL8608P | 1H DELAY LINE |
| 4 | TL8608P | 1H DELAY LINE |
| 5 | MC14053BCP | ANALOG SWITCHER |
| 6 | LA7016 | BURST GATE |
| 7 | RC4558P | R-Y CLAMP |
| 8 | RC4558P | B-Y CLAMP |
| | | |
| | | |
| Q1 | 2SC403SP | BUFFER |
| 2 | 2SC403SP | ACTIVE FILTER |
| 3 | 2SC403SP | Y-DELAY CORRECTER |
| 4 | 2SC3068 | BUFFER |
| 5 | 2SC3068 | BUFFER |
| 6 | 2SA844 | PHASE CONTROLLER |
| 7 | 2SC403SP | PHASE CONTROLLER |
| 8 | 2SA844 | PHASE CONT. AMP. |
| 9 | 2SC403SP | PHASE CONT. AMP. |
| 10 | 2SA1175 | APL FILTER |
| 11 | 2SA1175 | APL FILTER |
| 12 | 2SC403SP | APL FILTER SWITCH |
| 13 | 2SC403SP | R-Y L.P.F |
| 14 | 2SC403SP | R-Y L.P.F |
| 15 | 2SC403SP | B-Y L.P.F |
| 16 | 2SC403SP | B-Y L.P.F |
| 17 | 2SC403SP | AMPLIFIER |
| 18 | 2SK381 | R-Y CLAMP |
| 20 | 2SA1175 | BUFFER |
| 21 | 2SC403SP | BUFFER |
| 22 | 2SC403SP | CCD OUT L.P.F |
| 23 | 2SA844 | CCD OUT L.P.F |
| 24 | 2SC403SP | BUFFER |
| 25 | 2SC3068 | BUFFER |
| 26 | 2SK381 | B-Y CLAMP |
| 28 | 2SA1175 | BUFFER |
| 29 | 2SC403SP | BUFFER |
| 30 | 2SC403SP | CCD OUT L.P.F |
| 31 | 2SA1175 | CCD OUT L.P.F |
| 32 | 2SC403SP | BUFFER |
| 33 | 2SC3068 | BUFFER |
| 34 | 2SC403SP | CCD CLOCK GEN |
| 35 | 2SC403SP | CCD CLOCK GEN |
| 36 | 2SC403SP | BUFFER |
| 38 | 2SC403SP | BUFFER |
| 101 | 2SB734 | SYSTEM SWITCH |
| 102 | 2SD789 | SYSTEM SWITCH |
| 103 | DTA124ES | COMB. SWITCH |
| 104 | DTA124ES | COMB. SWITCH |
| | | |
| | | |
| D1 | 1SS119 | SYSTEM SWITCH |
| 2 | 1SS119 | COMB. SWITCH |
| 4 | RD3.0EB1 | CCD BIAS |
| 5 | RD9.1EB2 | SWITCH BIAS |
| 6 | 1SS119 | KILLER SWITCH |
| 10 | 1T25 | PHASE CONTROL |
| 11 | 1SS119 | PAL S/D SWITCH |
| 12 | RD12EB2 | PHASE SWITCH |
| 13 | RD12EB2 | SYSTEM SWITCH |
| 15 | 1SS119 | |
| 16 | 1SS119 | COMB SW |
| 201 | 1SS119 | PROTECTOR |
| 202 | 1SS119 | PROTECTOR |

● ▨ Conductor side pattern
● ▨ Component side pattern

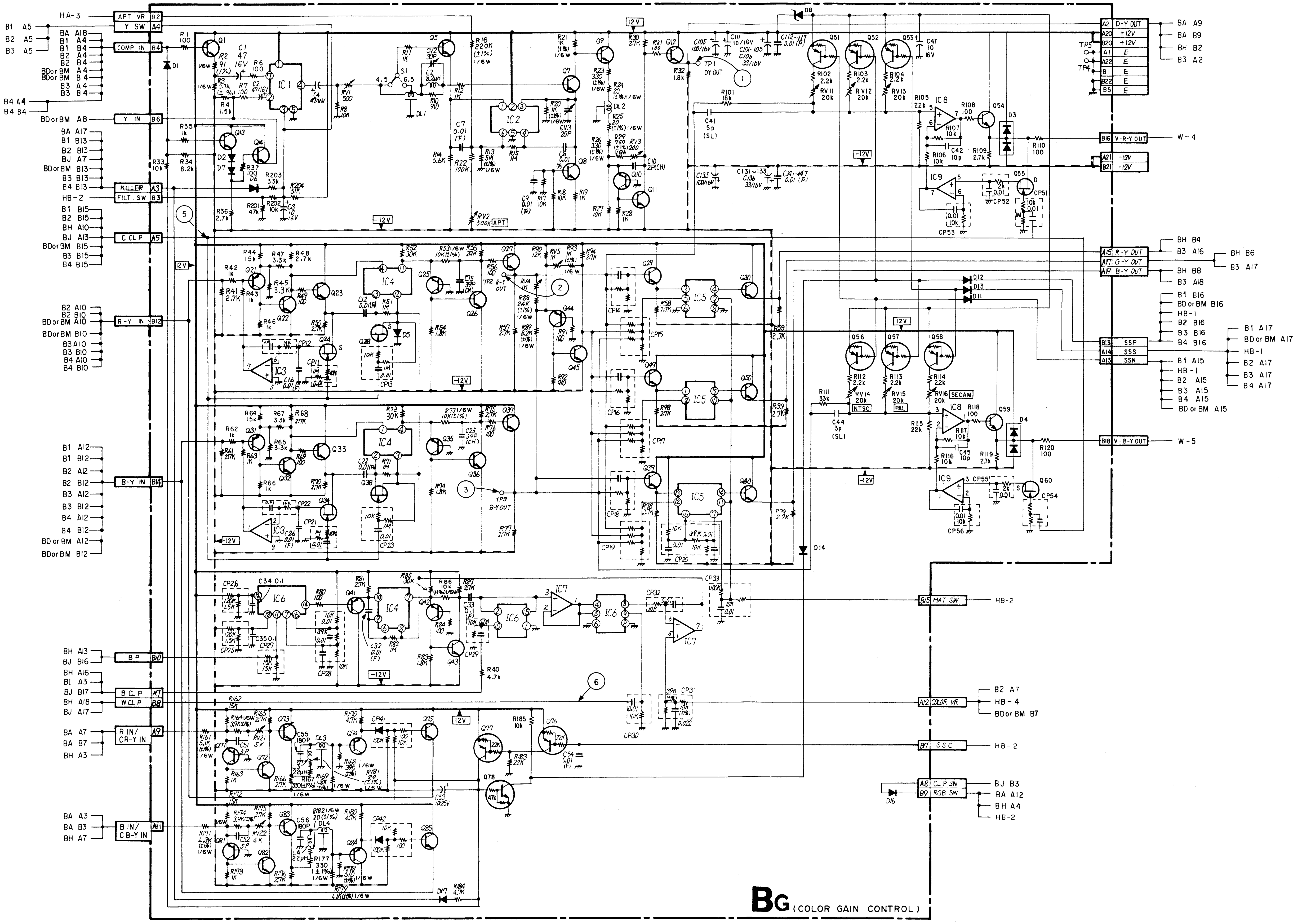
**BG board** (COLOR GAIN CONTROL, COMPONENT R-Y AMP & DELAY, APERTURE CONTROL, Y DELAY, VECTOR OUT, NTSC MATRIX SW, G-Y MATRIX AMP)

| | |
|---|---|
| IC | 1 6 3 4 7 5 8 9 |
| Q | 5 8 10 11 12 7 9 72 74 75 71 73 1 77 82 84 85 13 14 76 78 81 83 27 22 21 26 25 23 41 24 28 34 33 38 43 35 31 36 42 32 37 45 40 39 50 29 30 44 49 54 55 51 52 53 56 57 58 60 59 |
| D | 17 6 1 7 15 2 14 16 12 5 3 11 13 8 4 |
| TP<br>ADJ | RV1 RV2 RV3 CV2 CV3 TP1 RV21 TP4 RV22 TP5 RV5 RV4 RV11 RV12 RV13 TP2 TP3 RV14 RV15 RV16 |


BG
SONY
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
RV1
RV2
RV3
RV4
RV5
1-617-874-15
1BI, T5VO

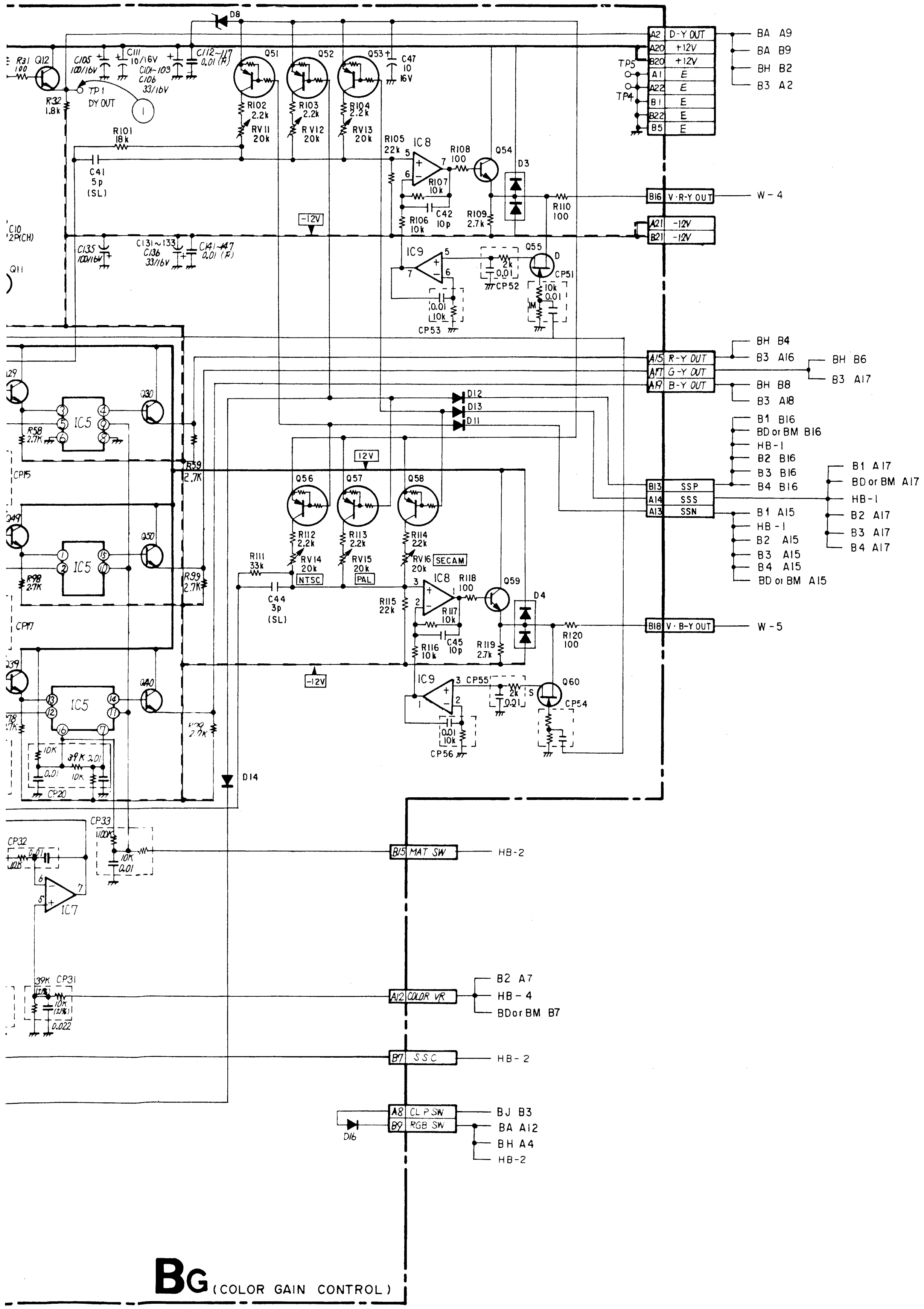
- ▨: Conductor side pattern
- ▨: Component side pattern

## BG board (COLOR GAIN CONTROL, COMPONENT R-Y AMP & DELAY, APERUTURE CONTROL, Y DERAY, VECTOR OUT NTSC MATRIX SW, G-Y MATRIX AMP)


HA-3
APT VR B2
Y SW A4
COMP IN B4
Y IN B6
KILLER A3
FILT. SW B3
C CLP A5
R-Y IN B12
B-Y IN B14
BP B10
B CLP A7
W CLP B8
R IN/ CR-Y IN A9
B IN/ CB-Y IN A11
HB-2
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
TP1 DY OUT
TP2 R-Y OUT
TP9 B-Y OUT
DL1
DL2
DL3
DL4
12V
-12V
A2 D-Y OUT
A20 +12V
B20 +12V
A1 E
A22 E
B1 E
B22 E
B5 E
TP5
TP4
BA A9
BA B9
BH B2
B3 A2
B16 V-R-Y OUT
W-4
A21 -12V
B21 -12V
A15 R-Y OUT
A17 G-Y OUT
A19 B-Y OUT
B13 SSP
A14 SSS
A13 SSN
NTSC
PAL
SECAM
B18 V-B-Y OUT
W-5
B15 MAT SW
A12 COLOR VR
B7 SSC
A8 CL P SW
B9 RGB SW
HB-2
HB-4
BDor BM B7
BJ B3
BA A12
BH A4
BG (COLOR GAIN CONTROL)

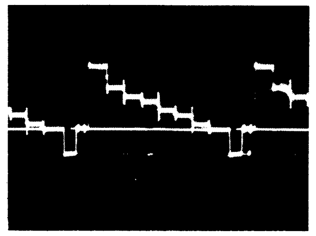
BG BO

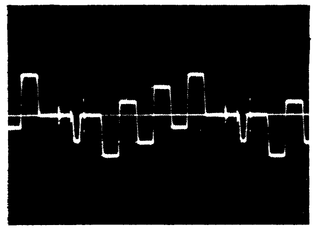
| IC1 |
|---|
| 2 |
| 3 |
| 4 |
| 5 |
| 6 |
| 7 |
| 8 |
| 9 |
| Q1 |
| 5 |
| 7 |
| 8 |
| 10 |
| 11 |
| 12 |
| 13 |
| 14 |
| 21 |
| 22 |
| 23 |
| 24 |
| 25 |
| 26 |
| 27 |
| 28 |
| 29 |
| 30 |
| 31 |
| 32 |
| 33 |
| 34 |
| 35 |
| 36 |
| 37 |
| 38 |
| 39 |
| 40 |
| 41 |
| 42 |
| 43 |

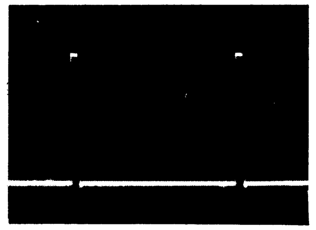

D8
Q12
C105 100/16V
C111 10/16V
C101~103
C106 33/16V
C112~117 0.01 (F)
TP1 DY OUT
Q51
Q52
Q53
C47 10 16V
R102 2.2k
R103 2.2k
R104 2.2k
RV11 20k
RV12 20k
RV13 20k
R101 18k
C41 5p (SL)
R105 22k
IC8
R108 100
Q54
D3
R107 10k
R106 10k
C42 10p
R109 2.7k
R110 100
-12V
C135 100/16V
C131~133
C136 33/16V
C141~147 0.01 (F)
IC9
Q55
CP51
CP52
CP53
A2 D-Y OUT
A20 +12V
B20 +12V
A1 E
A22 E
B1 E
B22 E
B5 E
TP5
TP4
BA A9
BA B9
BH B2
B3 A2
B16 V·R-Y OUT
W-4
A21 -12V
B21 -12V
BH B4
B3 A16
BH B6
B3 A17
A15 R-Y OUT
A17 G-Y OUT
A19 B-Y OUT
BH B8
B3 A18
D12
D13
D11
IC5
R58 2.7K
R59 2.7K
R99 2.7K
CP15
CP17
CP20
12V
Q56
Q57
Q58
B1 B16
BD or BM B16
HB-1
B2 B16
B3 B16
B4 B16
B13 SSP
A14 SSS
A13 SSN
B1 A17
BD or BM A17
HB-1
B2 A17
B3 A17
B4 A17
B1 A15
HB-1
B2 A15
B3 A15
B4 A15
BD or BM A15
R111 33k
R112 2.2k
R113 2.2k
R114 22k
RV14 20k
RV15 20k
RV16 20k
NTSC
PAL
SECAM
C44 3p (SL)
R118 100
Q59
D4
R115 22k
R117 10k
R116 10k
C45 10p
R119 2.7k
R120 100
B18 V·B-Y OUT
W-5
CP55
Q60
CP54
CP56
D14
CP32
CP33
IC7
B15 MAT SW
HB-2
CP31
A12 COLOR VR
B2 A7
HB-4
BD or BM B7
B7 SSC
HB-2
A8 CLP SW
B9 RGB SW
D16
BJ B3
BA A12
BH A4
HB-2
BG (COLOR GAIN CONTROL)

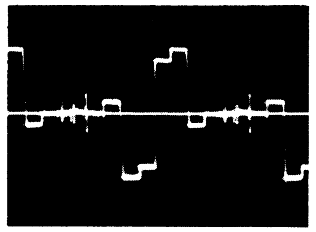
BG BOARD

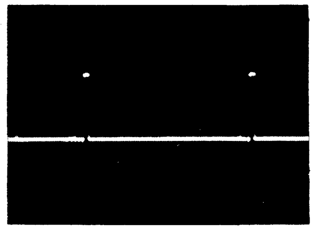
| | | |
|---|---|---|
| IC1 | LA7016 | FILTER SW |
| 2 | TX-429M | APERTURE |
| 3 | RC4558DQ | COLOR DIFFERENCE CLAMP |
| 4 | CX-718D | CHROMA CONTROL |
| 5 | MC14053BCP | MATRIX SW |
| 6 | MC14053BCP | CHROMA CONTROL |
| 7 | TL082CP | CHROMA CONTROL |
| 8 | TL082CP | VECTOR OUTPUT |
| 9 | TL082CP | VECTOR OUTPUT |
| | | |
| Q1 | 2SC403SP | BUFF |
| 5 | 2SC403SP | APERTURE |
| 7 | 2SC403SP | APERTURE |
| 8 | 2SC403SP | APERTURE |
| 9 | 2SC403SP | Y DELAY |
| 10 | 2SA844 | Y AMP |
| 11 | 2SC403SP | Y AMP |
| 12 | 2SC403SP | Y AMP |
| 13 | 2SC403SP | BUFF |
| 14 | 2SC3068 | BUFF |
| 21 | 2SA844 | R-Y AMP |
| 22 | 2SC403SP | R-Y AMP |
| 23 | 2SC403SP | R-Y CLAMP |
| 24 | 2SK381 | R-Y CLAMP |
| 25 | 2SA844 | R-Y CHROMA CONTROL |
| 26 | 2SC403SP | R-Y CHROMA CONTROL |
| 27 | 2SC403SP | R-Y CHROMA CONTROL |
| 28 | 2SK381 | R-Y CHROMA CONTROL |
| 29 | 2SC403SP | R-Y BUFF |
| 30 | 2SC403SP | R-Y BUFF |
| 31 | 2SA844 | B-Y AMP |
| 32 | 2SC403SP | B-Y AMP |
| 33 | 2SC403SP | B-Y CLAMP |
| 34 | 2SK381 | B-Y CLAMP |
| 35 | 2SA844 | B-Y CHROMA CONTROL |
| 36 | 2SC403SP | B-Y CHROMA CONTROL |
| 37 | 2SC403SP | B-Y CHROMA CONTROL |
| 38 | 2SK381 | B-Y CHROMA CONTROL |
| 39 | 2SC403SP | B-Y BUFF |
| 40 | 2SC403SP | B-Y BUFF |
| 41 | 2SA844 | CHROMA CONTROL |
| 42 | 2SA844 | CHROMA CONTROL |
| 43 | 2SC403SP | CHROMA CONTROL |
| Q44 | 2SA844 | CHROMA CONTROL |
| 45 | 2SC403SP | CHROMA CONTROL |
| 49 | 2SC403SP | G-Y BUFF |
| 50 | 2SC403SP | G-Y BUFF |
| 51 | DTA124ES | GAIN CHANGE SW |
| 52 | DTA124ES | GAIN CHANGE SW |
| 53 | DTA124ES | GAIN CHANGE SW |
| 54 | 2SC403SP | R-Y BUFF |
| 55 | 2SK381 | R-Y CLAMP |
| 56 | DTA124ES | GAIN CHANGE SW |
| 57 | DTA124ES | GAIN CHANGE SW |
| 58 | DTA124ES | GAIN CHANGE SW |
| 59 | 2SC403SP | B-Y BUFF |
| 60 | 2SK381 | B-Y CLAMP |
| 71 | 2SA844 | R-Y AMP |
| 72 | 2SC403SP | R-Y AMP |
| 73 | 2SC403SP | R-Y AMP |
| 74 | 2SA844 | R-Y DELAY |
| 75 | 2SC3068 | R-Y BUFF |
| 76 | DTA124ES | COMPONENT SW |
| 77 | DTA124ES | COMPONENT SW |
| 78 | DTC144ES | COMPONENT SW |
| 81 | 2SA844 | B-Y AMP |
| 82 | 2SC403SP | B-Y AMP |
| 83 | 2SC403SP | B-Y AMP |
| 84 | 2SA844 | B-Y DELAY |
| 85 | 2SC3068 | B-Y BUFF |
| | | |
| D1 | 1SS119 | COMPONENT SW |
| 2 | 1SS119 | DC SHIFT SW |
| 3 | MC932 | PROTECT |
| 4 | MC932 | PROTECT |
| 5 | 1SS119 | PROTECT |
| 6 | RD6.2EB2 | DC SHIFT |
| 7 | 1SS119 | FILTER SW |
| 8 | RD6.2E-B | +6V REG |
| 11 | 1SS119 | GAIN CHANGE SW |
| 12 | 1SS119 | GAIN CHANGE SW |
| 13 | 1SS119 | GAIN CHANGE SW |
| 14 | 1SS119 | GAIN CHANGE SW |
| 16 | 1SS119 | R.G.B. SW |
| 17 | 1SS119 | KILLER |
| | | |


① 1Vp-p (H)


③ 1.6Vp-p (H)


⑤ 5Vp-p (H)

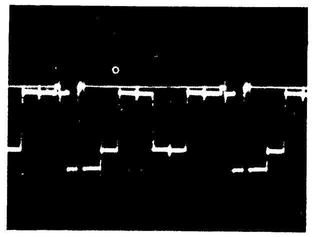

② 1.4Vp-p (H)


⑥ 6Vp-p (H)

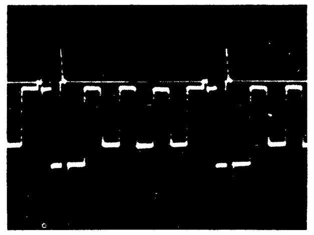
BH BOARD

| | | |
|---|---|---|
| IC1(1/3) | TC4053BP | COMPOSITE/R.G.B. CHANGE SW |
| (2/3) | | SET UP & CROSS HATCH SW |
| (3/3) | | SCREENING SW |
| 2(1/3) | TC4053BP | COMPOSITE/R.G.B. CHANGE SW |
| (2/3) | | SET UP SW |
| (3/3) | | SCREENING SW |
| 3(1/3) | TC4053BP | COMPOSITE/R.G.B. CHANGE SW |
| (2/3) | | SET UP SW |
| (3/3) | | SCREENING SW |
| 4(1/3) | TC4053BP | COMPOSITE/R.G.B. CHANGE SW |
| (2/3) | | SET UP SW |
| (3/3) | | SCREENING SW |
| 5 | RC4558S | SAMPLE HOLD |
| 6 | RC4558S | SAMPLE HOLD |
| 7 | LA7016 | BLUE ONLY SW |
| 8 | LA7016 | BLUE ONLY SW |
| 9 | MC14053BCP | AGC PULSE, SET UP, WHITE, VITC INSERT GEN |
| 10(1/2) | MC14053BCP | AGC PULSE, SET UP, WHITE, VITC INSERT GEN |
| (2/2) | | COLOR DIFFERENCE & R.G.B. SCREENING PULSE GEN |
| 11(1/4) | MC14081BCP | AGC PULSE, SET UP, WHITE, VITC INSERT GEN |
| (3/4) | | |
| (2/4) | | COLOR DIFFERENCE & R.G.B. SCREENING PULSE GEN |
| (4/4) | | Y SCREENING PULSE GEN |
| 12 | MC14081BCP | AGC PULSE, SET UP, WHITE, VITC INSERT GEN |
| 13 | MC14001BCP | AGC PULSE, SET UP, WHITE, VITC INSERT GEN |
| 14 | TC4030BP | AGC PULSE, SET UP, WHITE, VITC INSERT GEN |
| 101 | TX-429M | R CONTRAST CONTROL |
| 102 | TL082CP | R CONTRAST & BRIGHT CONTROL |
| 201 | TX-429M | G CONTRAST CONTROL |
| 202 | TL082CP | G CONTRAST & BRIGHT CONTROL |
| 301 | TX-429M | B CONTRAST CONTROL |
| 302 | TL082CP | B CONTRAST & BRIGHT CONTROL |
| | | |
| | | |
| Q1 | 2SC403SP | Y BUFF |
| 2 | 2SK523 | Y SAMPLE HOLD |
| 3 | 2SA844 | Y BUFF |
| 4 | 2SC403SP | R-Y/R BUFF |

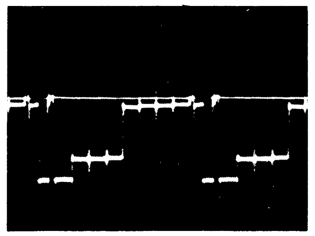
| | | |
|---|---|---|
| Q5 | 2SK523 | R-Y/Y SAMPLE HOLD |
| 6 | 2SA844 | R-Y/R BUFF |
| 7 | 2SC403SP | G-Y/R BUFF |
| 8 | 2SK523 | G-Y/Y SAMPLE HOLD |
| 9 | 2SA844 | G-Y/G BUFF |
| 10 | 2SC403SP | B-Y/B BUFF |
| 11 | 2SK523 | B-Y/B SAMPLE HOLD |
| 12 | 2SA844 | B-Y/B BUFF |
| 13 | 2SA844 | R BUFF |
| 14 | 2SA844 | G BUFF |
| 15 | 2SA844 | B BUFF |
| 16 | 2SC3068 | AGC PULSE BUFF |
| 101 | 2SK381 | R CONTRAST CONTROL |
| 102 | 2SA844 | R AMP |
| 103 | 2SC403SP | R AMP |
| 104 | 2SC403SP | R LIMITER |
| 105 | 2SC403SP | R LIMITER |
| 106 | 2SK381 | R BRIGHT CONTROL |
| 107 | 2SK381 | R CONTRAST CONTROL |
| 108 | 2SK381 | R CONTRAST CONTROL |
| 201 | 2SK381 | G CONTRAST CONTROL |
| 202 | 2SA844 | G AMP |
| 203 | 2SC403SP | G AMP |
| 204 | 2SC403SP | G LIMITER |
| 205 | 2SC403SP | G LIMITER |
| 206 | 2SK381 | G BRIGHT CONTROL |
| 207 | 2SK381 | G CONTRAST CONTROL |
| 208 | 2SK381 | G CONTRAST CONTROL |
| 301 | 2SK381 | B CONTRAST CONTROL |
| 302 | 2SA844 | B AMP |
| 303 | 2SC403SP | B AMP |
| 304 | 2SC403SP | B LIMITER |
| 305 | 2SC403SP | B LIMITER |
| 306 | 2SK381 | B BRIGHT CONTROL |
| 307 | 2SK381 | B CONTRAST CONTROL |
| 308 | 2SK381 | B CONTRAST CONTROL |
| | | |
| | | |
| D1 | 1SS119 | |
| 101 | 1SS119 | R LIMITER |
| 102 | 1SS119 | R PROTECT |
| 201 | 1SS119 | G LIMITER |
| 202 | 1SS119 | G PROTECT |
| 301 | 1SS119 | B LIMITER |
| 302 | 1SS119 | B PROTECT |



① 0.7Vp-p (H)

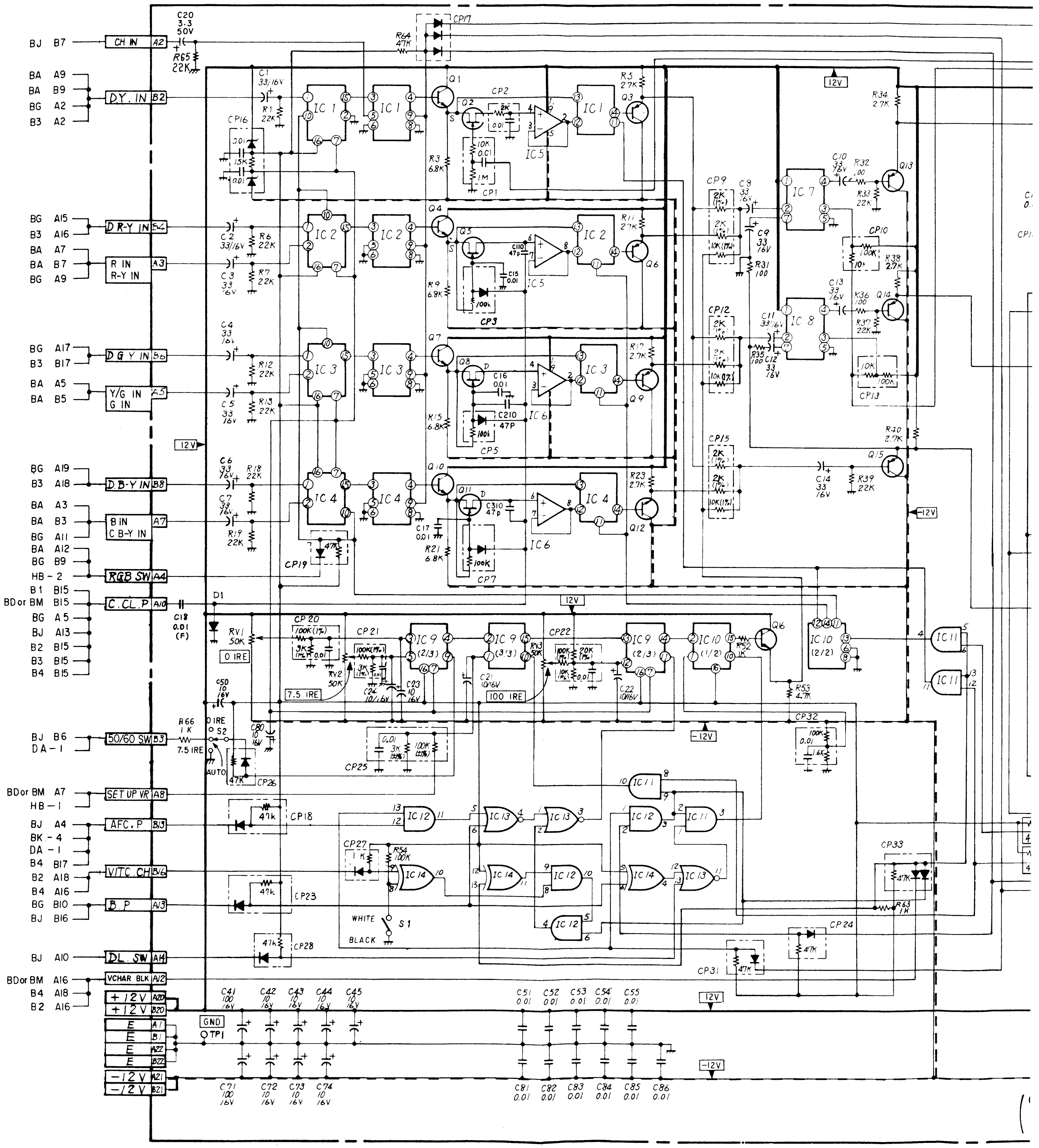


③ 0.7Vp-p (H)



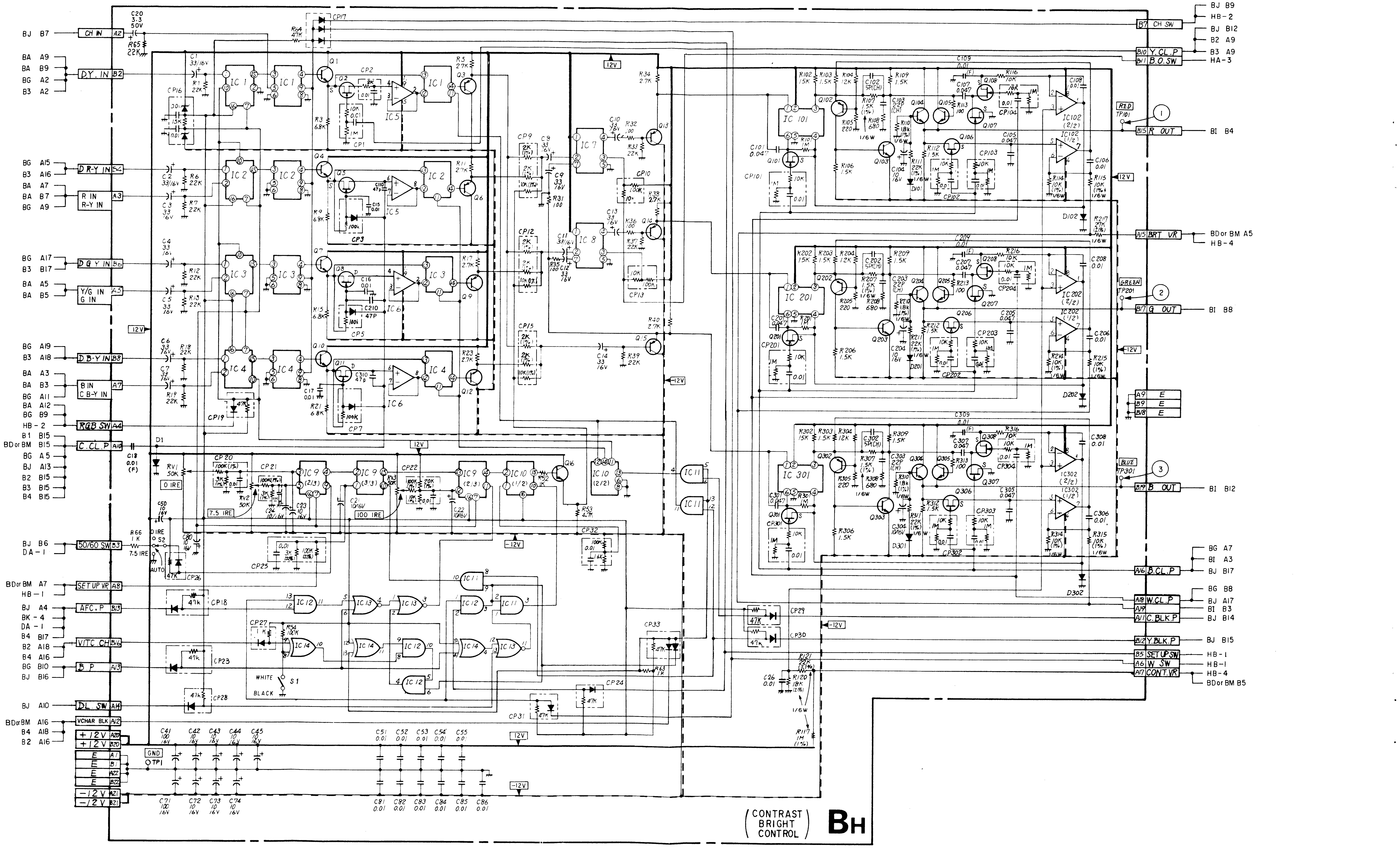
② 0.7Vp-p (H)

## BH board (Y/COLOR DIFFERENCE/RGB SIGNAL SWITCHING, Y-C MATRIX, CONTRAST/BRIGHTNESS CONTROL)



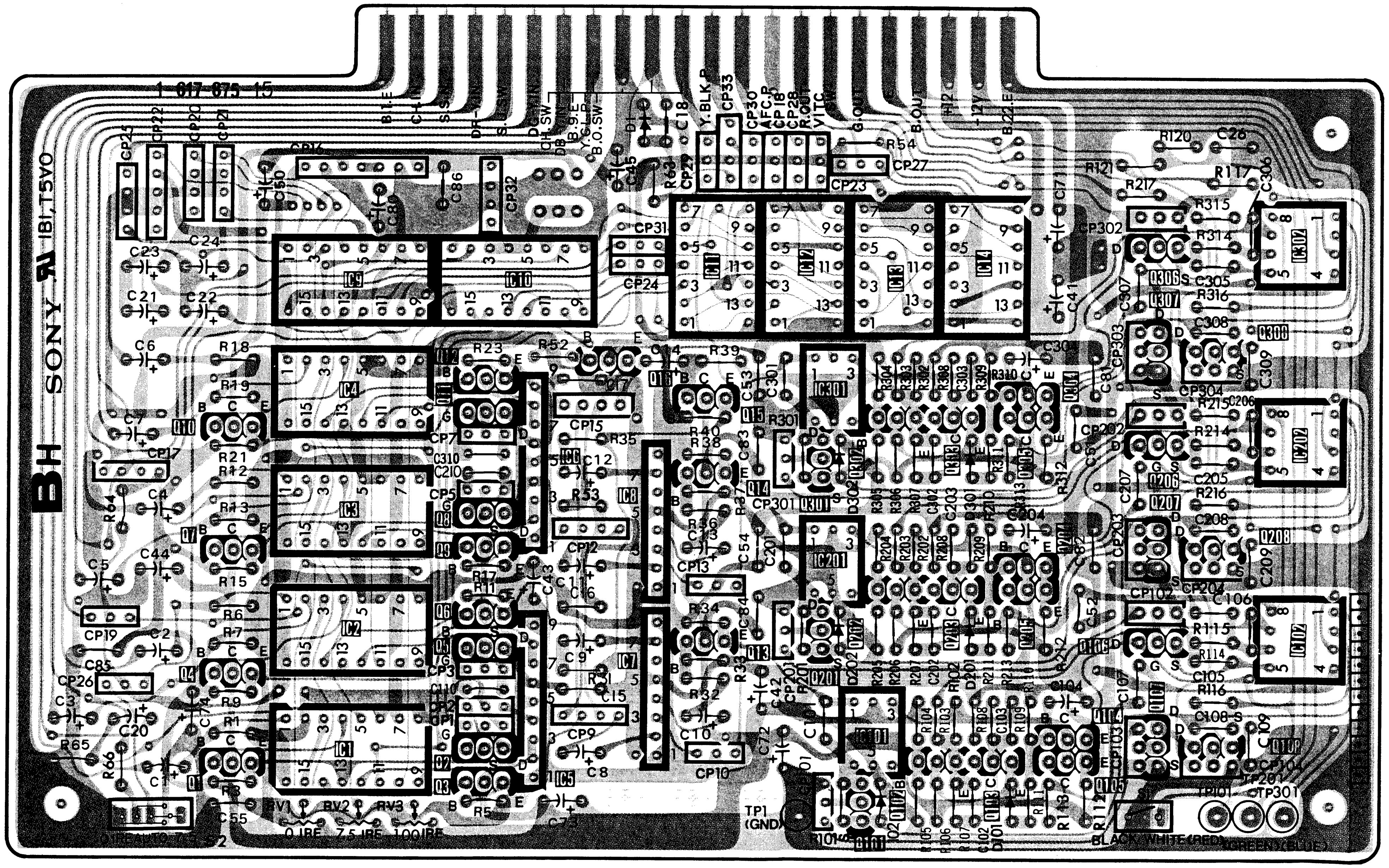
BJ B7 CH IN A2
BA A9
BA B9
BG A2
B3 A2
DY. IN B2
BG A15
B3 A16
DR-Y IN B4
BA A7
BA B7
BG A9
R IN R-Y IN A3
BG A17
B3 B17
DG-Y IN B6
BA A5
BA B5
Y/G IN G IN A5
BG A19
B3 A18
DB-Y IN B8
BA A3
BA B3
B IN CB-Y IN A7
BG A11
BA A12
BG B9
HB-2 RGB SW A4
B1 B15
BD or BM B15 C.CL.P A10
BG A5
BJ A13
B2 B15
B3 B15
B4 B15
BJ B6
DA-1 50/60 SW B3
BD or BM A7
HB-1 SET UP VR A8
BJ A4
BK-4
DA-1 AFC.P B13
B4 B17
B2 A18
B4 A16 VITC CH B16
BG B10
BJ B16 B.P A13
BJ A10 DL SW A14
BD or BM A16 VCHAR BLK A12
B4 A18 +12V A20
B2 A16 +12V B20
GND TP1
E A1
E B1
E A22
E B22
-12V A21
-12V B21
IC1 IC2 IC3 IC4 IC5 IC6 IC7 IC8
IC9 (2/3) IC9 (3/3) IC10 (1/2) IC10 (2/2) IC11 IC12 IC13 IC14
Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10 Q11 Q12 Q13 Q14 Q15 Q16
D1
RV1 50K
RV2 50K
0 IRE
7.5 IRE
100 IRE
S2 0 IRE 7.5 IRE AUTO
S1 WHITE BLACK
CP1 CP2 CP3 CP5 CP7 CP9 CP10 CP12 CP13 CP15 CP16 CP17 CP18 CP19 CP20 CP21 CP22 CP23 CP24 CP25 CP26 CP27 CP28 CP31 CP32 CP33
12V
-12V
C41 100 16V
C42 10 16V
C43 10 16V
C44 10 16V
C45 10 16V
C51 0.01
C52 0.01
C53 0.01
C54 0.01
C55 0.01
C71 100 16V
C72 10 16V
C73 10 16V
C74 10 16V
C81 0.01
C82 0.01
C83 0.01
C84 0.01
C85 0.01
C86 0.01

BH board (Y/COLOR DIFFERENCE/RGB SIGNAL SWITCHING, Y-C MATRIX, CONTRAST/BRIGHTNESS CONTROL)


BJ B7
CH IN A2
BA A9
BA B9
BG A2
B3 A2
DY. IN B2
BG A15
B3 A16
D R-Y IN B4
BA A7
BA B7
BG A9
R IN
R-Y IN A3
BG A17
B3 B17
D G Y IN B6
BA A5
BA B5
Y/G IN
G IN A5
BG A19
B3 A18
D B-Y IN B8
BA A3
BA B3
BG A11
BA A12
BG B9
B IN
C B-Y IN A7
HB-2
RGB SW A4
B1 B15
BDor BM B15
C.CL.P A10
BG A5
BJ A13
B2 B15
B3 B15
B4 B15
BJ B6
DA-1
50/60 SW B3
BDor BM A7
HB-1
SET UP VR A8
BJ A4
BK-4
DA-1
AFC. P B13
B4 B17
B2 A18
B4 A16
VITC CH B16
BG B10
BJ B16
B P A13
BJ A10
DL SW A14
BDor BM A16
VCHAR BLK A12
B4 A18
B2 A16
+12V A20
+12V B20
E A1
E B1
E A22
E B22
-12V A21
-12V B21
GND
TP1
IC 1
IC 2
IC 3
IC 4
IC 5
IC 6
IC 7
IC 8
IC 9
IC 10
IC 11
IC 12
IC 13
IC 14
IC 101
IC 102
IC 201
IC 202
IC 301
IC 302
12V
-12V
0 IRE
7.5 IRE
100 IRE
AUTO
WHITE
BLACK
S1
S2
RV1 50K
RV2 50K
BJ B9
HB-2
BJ B12
B2 A9
B3 A9
HA-3
CH SW B7
Y. CL. P B10
B. O. SW B11
RED TP101
R OUT B15
BI B4
BRT VR A5
BDor BM A5
HB-4
GREEN TP201
G OUT B17
BI B8
A9 E
B9 E
B18 E
BLUE TP301
B OUT B19
BI B12
BG A7
BI A3
BJ B17
B. CL. P A16
BG B8
BJ A17
BI B3
BJ B14
W. CL. P A18
A19
C. BLK. P A11
BJ B15
Y. BLK. P B12
SET UP SW B5
W SW A6
CONT. VR A17
HB-1
HB-1
HB-4
BDor BM B5
CONTRAST BRIGHT CONTROL
BH

BH board (Y/COLOR DIFFERENCE/RGB SIGNAL SWITCHING, Y-C MATRIX, CONTRAST/BRIGHTNESS CONTROL)

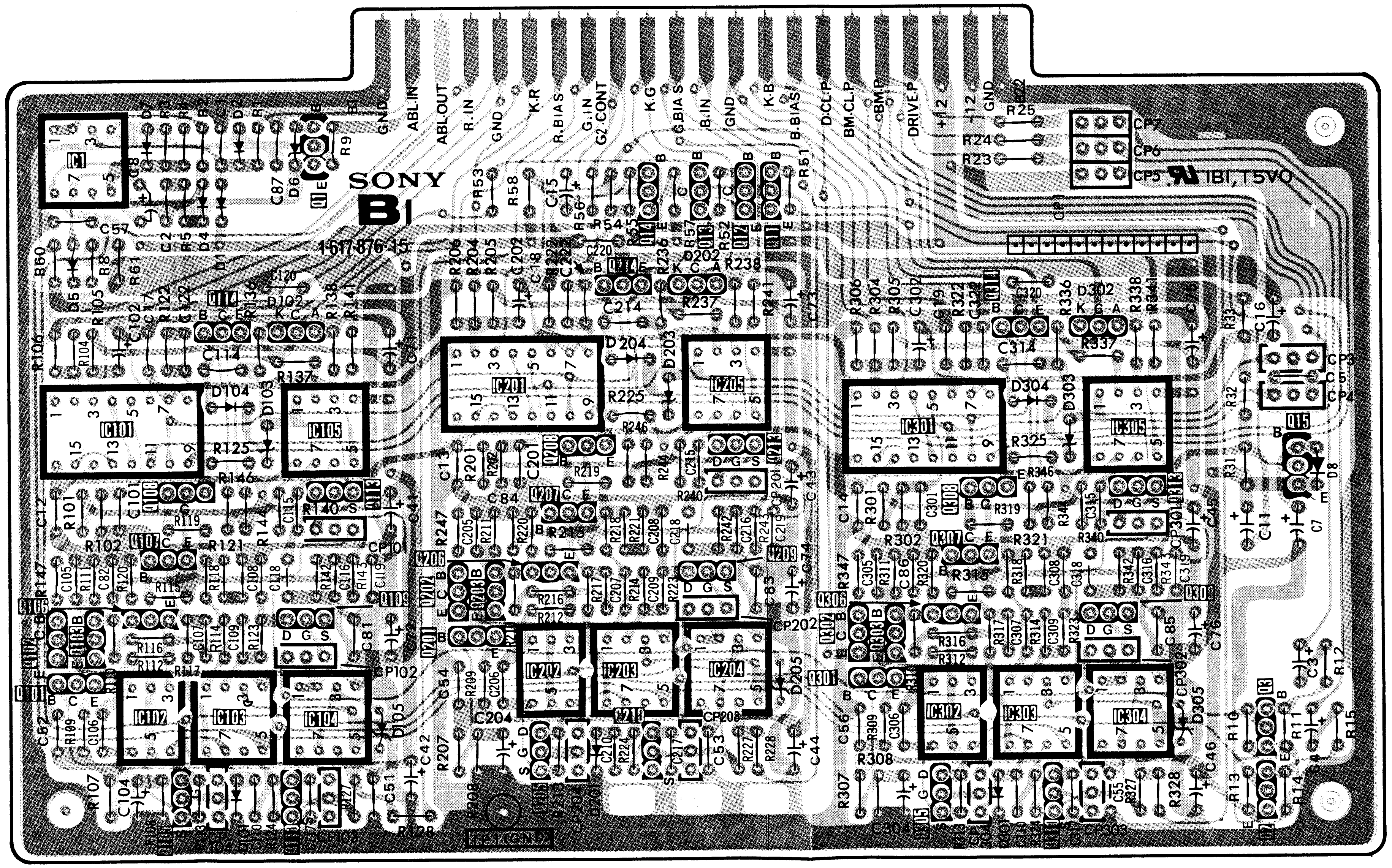
| | |
|---|---|
| IC | 9<br>4<br>3<br>2<br>1<br>10<br>6<br>5<br>8<br>7<br>11<br>12<br>301<br>201<br>101<br>13<br>14<br>202 |
| Q | 10<br>7<br>4<br>1<br>12<br>11<br>8<br>9<br>6<br>5<br>2<br>3<br>16<br>15<br>14<br>13<br>301<br>201<br>101<br>302<br>202<br>102<br>303<br>203<br>103<br>304<br>305<br>204<br>205<br>104<br>105<br>306<br>307<br>206<br>207<br>106<br>107<br>308<br>208<br>108 |
| D | 1<br>302<br>202<br>102<br>301<br>201<br>101 |
| TP ADJ | RV1<br>RV2<br>RV3<br>TP1<br>TP201<br>TP101<br>TP301 |


1-617-675-15
SONY
BH
IBI,T5VO
TP1 (GND)
RV1 RV2 RV3
0 IRE 7.5 IRE 100 IRE
TP101 TP201 TP301
BLACK WHITE (RED) (GREEN) (BLUE)

● ▨ : Conductor side pattern
● ▨ : Component side pattern

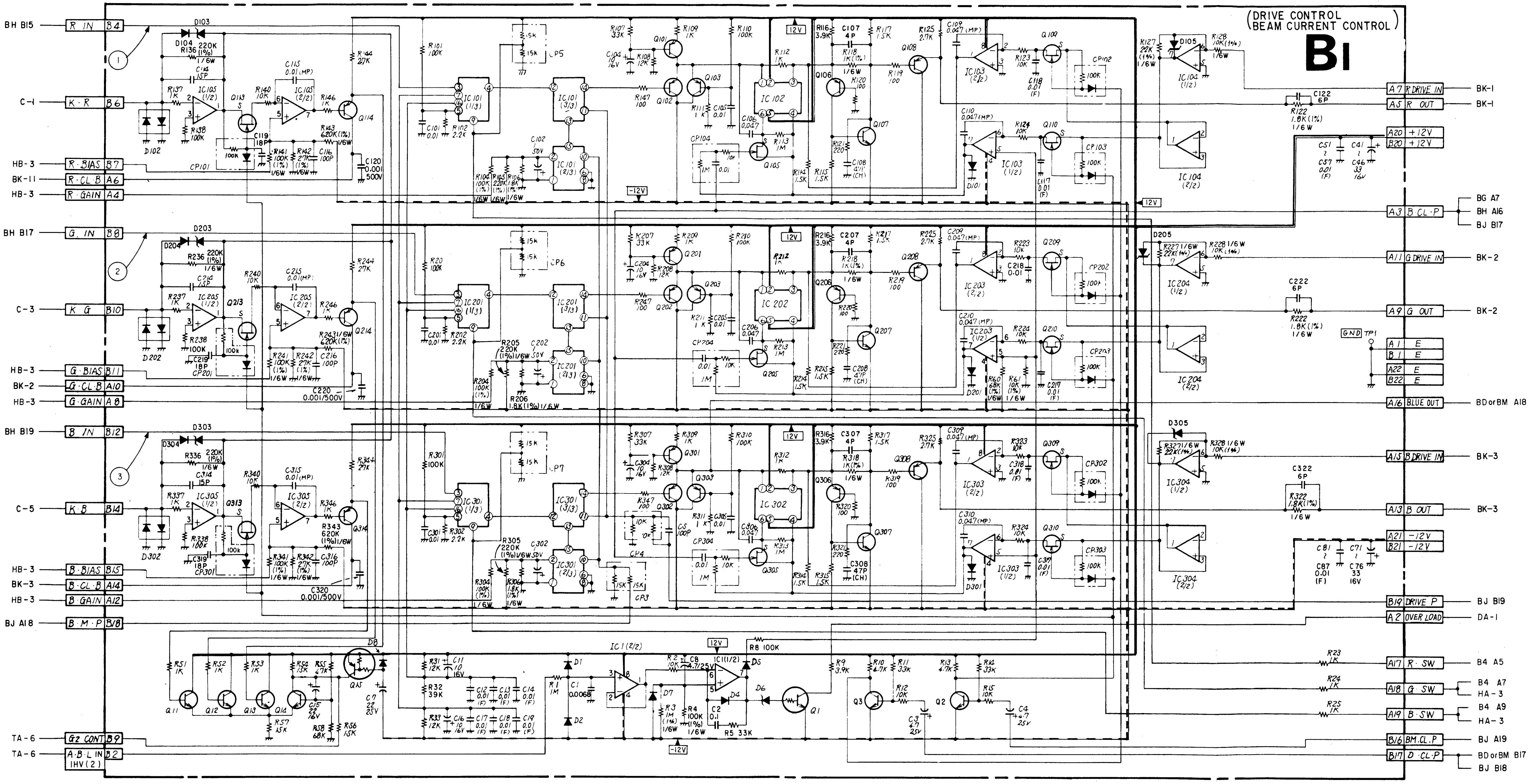
**BI board (DRIVE CONTROL, BEAM CURRENT CONTROL)**

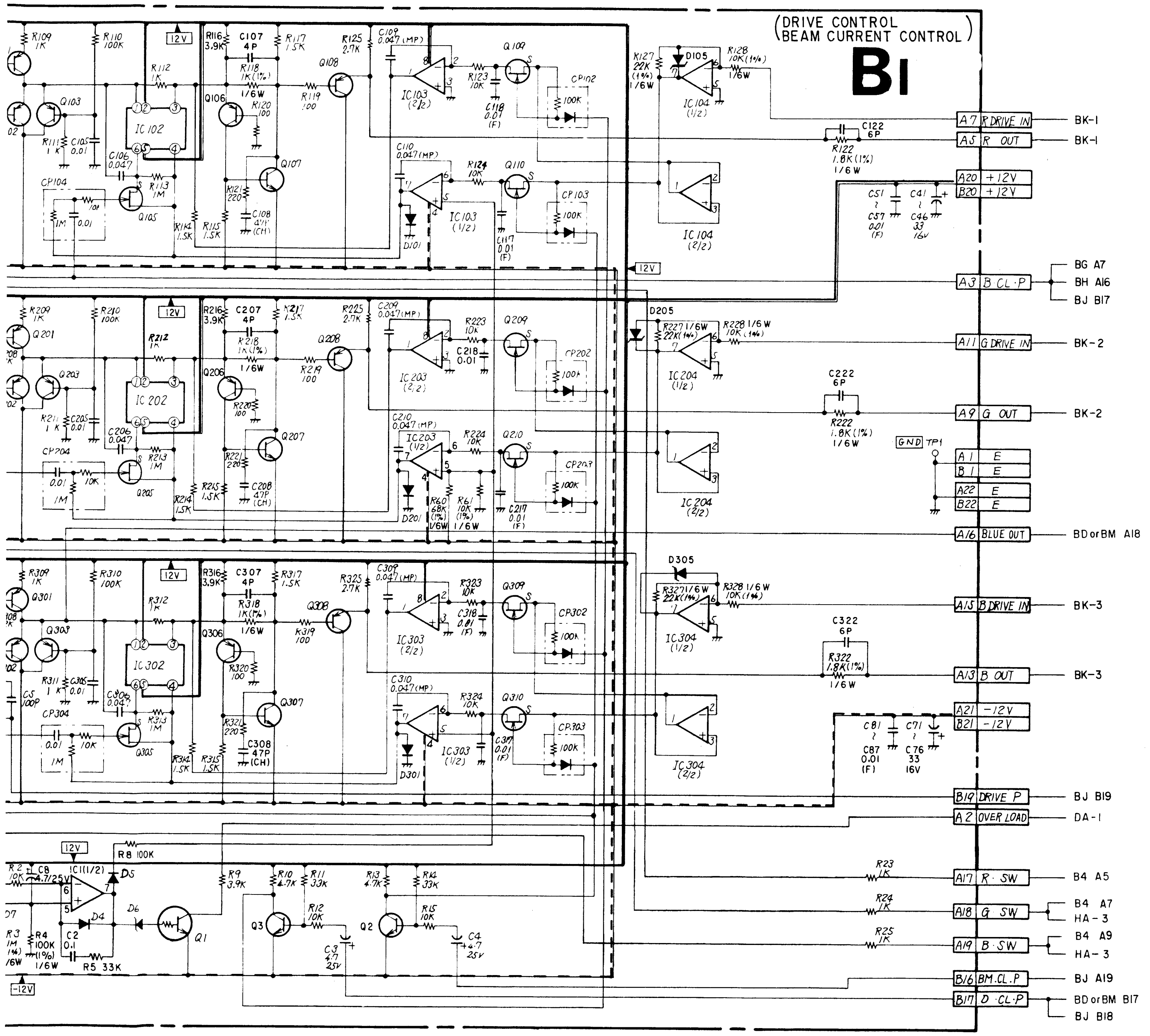
| | |
|---|---|
| IC | 1 101 102 103 105 104 201 202 203 205 204 301 302 303 305 304 |
| Q | 102 103 101 108 107 106 105 114 110 109 1 113 202 203 201 206 207 208 205 214 14 210 209 13 213 12 11 302 303 301 306 305 307 308 314 310 309 313 3 2 15 |
| D | 5 7 4 1 104 101 2 103 102 6 105 201 204 203 202 205 301 304 303 302 305 8 |
| TP | TP1 |


GND
ABL.IN
ABL.OUT
R.IN
GND
K.R
R.BIAS
G.IN
G2.CONT
K.G
G.BIAS
B.IN
GND
K.B
B.BIAS
D.CL.P
BM.CL.P
BM.P
DRIVE.P
+12
-12
GND
SONY
BI
1-617-876-15
IBI, I 5VO
IC1
IC101
IC102
IC103
IC104
IC105
IC201
IC202
IC203
IC204
IC205
IC301
IC302
IC303
IC304
IC305
CP1
CP3
CP4
CP5
CP6
CP7
TP1(GND)

- ▨ : Conductor side pattern
- ▨ : Component side pattern

**BI board (DRIVE CONTROL, BEAM CURRENT CONTROL)**

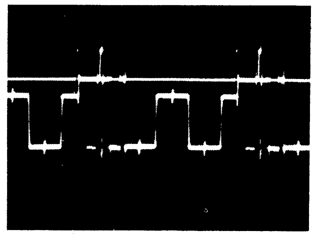

(DRIVE CONTROL
BEAM CURRENT CONTROL)
BI
BH B15
R IN B4
C-1
K·R B6
HB-3
R·BIAS B7
BK-11
R·CL·B A6
HB-3
R·GAIN A4
BH B17
G IN B8
C-3
K·G B10
HB-3
G·BIAS B11
BK-2
G·CL·B A10
HB-3
G·GAIN A8
BH B19
B IN B12
C-5
K·B B14
HB-3
B·BIAS B15
BK-3
B·CL·B A14
HB-3
B GAIN A12
BJ A18
B·M·P B18
TA-6
G2 CONT B9
TA-6
A·B·L IN B2
IHV(2)
A7 R DRIVE IN
BK-1
A5 R OUT
BK-1
A20 +12V
B20 +12V
A3 B·CL·P
BG A7
BH A16
BJ B17
A11 G DRIVE IN
BK-2
A9 G OUT
BK-2
GND
TP1
A1 E
B1 E
A22 E
B22 E
A16 BLUE OUT
BD or BM A18
A15 B DRIVE IN
BK-3
A13 B OUT
BK-3
A21 -12V
B21 -12V
B19 DRIVE P
BJ B19
A2 OVER LOAD
DA-1
A17 R·SW
B4 A5
A18 G SW
B4 A7
HA-3
A19 B·SW
B4 A9
HA-3
B16 BM·CL·P
BJ A19
B17 D·CL·P
BD or BM B17
BJ B18
IC101 (1/3)
IC101 (3/3)
IC101 (2/3)
IC102
IC103 (2/2)
IC103 (1/2)
IC104 (1/2)
IC104 (2/2)
IC105 (1/2)
IC105 (2/2)
IC201 (1/3)
IC201 (3/3)
IC201 (2/3)
IC202
IC203 (2/2)
IC203 (1/2)
IC204 (1/2)
IC204 (2/2)
IC205 (1/2)
IC205 (2/2)
IC301 (1/3)
IC301 (3/3)
IC301 (2/3)
IC302
IC303 (2/2)
IC303 (1/2)
IC304 (1/2)
IC304 (2/2)
IC305 (1/2)
IC305 (2/2)
IC1 (2/2)
IC1 (1/2)
CP5
CP6
CP7
CP101
CP102
CP103
CP104
CP201
CP202
CP203
CP204
CP301
CP302
CP303
CP304
CP3
CP4
12V
-12V
R8 100K
R5 33K
C122 6P
R122 1.8K (1%) 1/6W
C222 6P
R222 1.8K (1%) 1/6W
C322 6P
R322 1.8K (1%) 1/6W
C120 0.001 500V
C220 0.001/500V
C320 0.001/500V
C87 0.01 (F)
C76 33 16V
D103
D104
D203
D204
D303
D304
D105
D205
D305
Q11
Q12
Q13
Q14
Q15
Q1
Q2
Q3


DRIVE CONTROL
BEAM CURRENT CONTROL
BI
A7 R DRIVE IN — BK-1
A5 R OUT — BK-1
A20 +12V
B20 +12V
A3 B CL·P — BG A7, BH A16, BJ B17
A11 G DRIVE IN — BK-2
A9 G OUT — BK-2
GND TP1
A1 E
B1 E
A22 E
B22 E
A16 BLUE OUT — BD or BM A18
A15 B DRIVE IN — BK-3
A13 B OUT — BK-3
A21 -12V
B21 -12V
B19 DRIVE P — BJ B19
A2 OVER LOAD — DA-1
A17 R·SW — B4 A5
A18 G SW — B4 A7, HA-3
A19 B·SW — B4 A9, HA-3
B16 BM.CL.P — BJ A19
B17 D CL·P — BD or BM B17, BJ B18
IC102
IC103
IC104
IC202
IC203
IC204
IC302
IC303
IC304
IC1(1/2)
Q1
Q2
Q3
12V
-12V

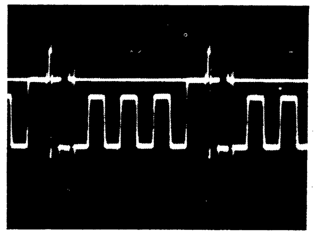
BI BOARD

| | | |
|---|---|---|
| IC1 | RC4558DQ | ABL |
| 101(1/3) | TC4053BP | SCREEN OFF SW |
| (2/3) | | AGC PULSE GEN |
| (3/3) | | AGC PULSE INSERT |
| 102 | TX-429M | GAIN CONTROL |
| 103(1/2) | TL082CP | GAIN CONTROL |
| (2/2) | | BIAS CONTROL |
| 104 | TL082CP | AMP |
| 105(1/2) | TL082CP | I-V CONVERTER |
| (2/2) | | CURRENT FEEDBACK CONTROL |
| 201(1/3) | TC4053BP | SCREEN OFF SW |
| (2/3) | | AGC PULSE GEN |
| (3/3) | | AGC PULSE INSERT |
| 202 | TX-429M | GAIN CONTROL |
| 203(1/2) | TL082CP | GAIN CONTROL |
| (2/2) | | BIAS CONTROL |
| 204 | TL082CP | AMP |
| 205(1/2) | TL082CP | I-V CONVERTER |
| (2/2) | | CURRENT FEEDBACK CONTROL |
| 301(1/3) | TC4053BP | SCREEN OFF SW |
| (2/3) | | AGC PULSE GEN |
| (3/3) | | AGC PULSE INSERT |
| 302 | TX-429M | GAIN CONTROL |
| 303(1/2) | TL082CP | GAIN CONTROL |
| (2/2) | | BIAS CONTROL |
| 304 | TL082CP | AMP |
| 305(1/2) | TL082CP | I-V CONVERTER |
| (2/2) | | CURRENT FEEDBACK CONTROL |
| | | |
| | | |
| Q1 | DTC143TS | OVER LOAD LED DRIVE |
| 2 | 2SC403SP | PULSE SHAPING |
| 3 | 2SC403SP | PULSE SHAPING |
| 11 | 2SC2878 | G2 CONTROL |
| 12 | 2SC2878 | G2 CONTROL |
| 13 | 2SC2878 | G2 CONTROL |
| 14 | 2SC2878 | G2 CONTROL |
| 15 | DTA144ES | G2 CONTROL |
| 101 | 2SA844 | LIMITER |
| 102 | 2SA844 | LIMITER |
| 103 | 2SA844 | LIMITER |
| 105 | 2SK381 | GAIN CONTROL |
| 106 | 2SA844 | AMP |
| 107 | 2SC2668 | AMP |
| 108 | 2SA844 | AMP |
| 109 | 2SK381 | SAMPLE-HOLD |

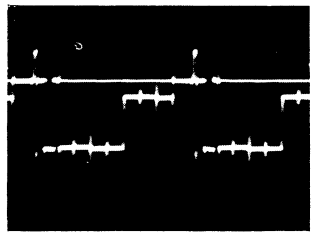
| | | |
|---|---|---|
| Q110 | 2SK381 | SAMPLE-HOLD |
| 113 | 2SK381 | SAMPLING |
| 114 | 2SA1091 | CLAMP BIAS CONTROL |
| 201 | 2SA844 | LIMITER |
| 202 | 2SA844 | LIMITER |
| 203 | 2SA844 | LIMITER |
| 205 | 2SK381 | GAIN CONTROL |
| 206 | 2SA844 | AMP |
| 207 | 2SC2668 | AMP |
| 208 | 2SA844 | AMP |
| 209 | 2SK381 | SAMPLE-HOLD |
| 210 | 2SK381 | SAMPLE-HOLD |
| 213 | 2SK381 | SAMPLING |
| 214 | 2SA1091 | CLAMP BIAS CONTROL |
| 301 | 2SA844 | LIMITER |
| 302 | 2SA844 | LIMITER |
| 303 | 2SA844 | LIMITER |
| 305 | 2SK381 | GAIN CONTROL |
| 306 | 2SA844 | AMP |
| 307 | 2SC2668 | AMP |
| 308 | 2SA844 | AMP |
| 309 | 2SK381 | SAMPLE-HOLD |
| 310 | 2SK381 | SAMPLE-HOLD |
| 313 | 2SK381 | SAMPLING |
| 314 | 2SA1091 | CLAMP BIAS CONTROL |
| | | |
| | | |
| D1 | 1SS119 | PROTECTOR |
| 2 | 1SS119 | PROTECTOR |
| 4 | 1SS119 | ABL |
| 5 | 1SS119 | ABL |
| 6 | RD12ESB1 | OVER LOAD LED DRIVE |
| 7 | 1SS119 | ABL |
| 8 | 1SS119 | G2 CONTROL |
| 101 | 1SS119 | PROTECTOR |
| 102 | MC932 | PROTECTOR |
| 103 | RD4.3ES-T1B | LIMITER |
| 104 | 1SS119 | LIMITER |
| 201 | 1SS119 | PROTECTOR |
| 202 | MC932 | PROTECTOR |
| 203 | RD4.3ES-T1B | LIMITER |
| 204 | 1SS119 | LIMITER |
| 301 | 1SS119 | PROTECTOR |
| 302 | MC932 | PROTECTOR |
| 303 | RD4.3ES-T1B | LIMITER |
| 304 | 1SS119 | LIMITER |
| D105 | RD6.2ESB | |
| D205 | RD6.2ESB | |
| D305 | RD6.3ESB | |



① 1.0Vp-p(H)



③ 1.0Vp-p(H)

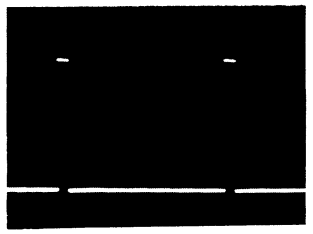


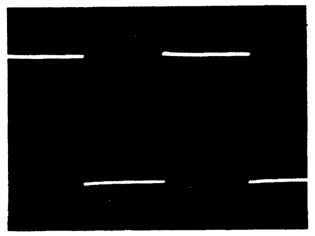
② 1.0Vp-p(H)

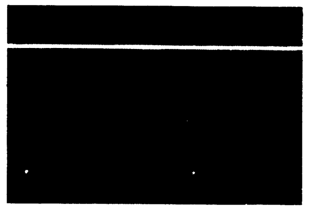
BJ BOARD

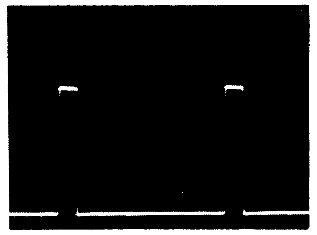
| | | |
|---|---|---|
| IC1 | HD14538BP | PIC.SET.PULSE GEN |
| 2 | MC14001BCP | CROSS HATCH GEN |
| 3 | TC4040BP | V SYNC & DELAY |
| 4 | TC4040BP | V COUNT |
| 5 | TC504027BP | V SYNC & DELAY |
| 6(1/2) | TC504027BP | CHROMA CLAMP PULSE GEN |
| (2/2) | | 2fH MULTI |
| 7 | TC504027BP | V COUNT |
| 8 | TC504027BP | 1H PULSE PROCESS |
| 9(1/2) | TC4027BP | V SYNC & DELAY |
| (2/2) | | 1H PULSE PROCESS |
| 10(1/2) | HD14538BP | B.G.P GEN 2 |
| (2/2) | | H CYCLE |
| 11(1/2) | HD14538BP | CROSS HATCH GEN |
| (2/2) | | SPLIT Y BLK, C BLK PULSE GEN |
| 12 | HD14538BP | Y CYCLE AGC & CLAMP PULSE GEN |
| 13(1/4) | MC14001BCP | CHROMA CLAMP PULSE GEN |
| (2/4) | | Y.CL.P GEN |
| (3/4) | | B.G.P GEN 2 |
| (4/4) | | RESIDUAL PULSE GEN |
| 14(1/4) | MC14001BCP | SPLIT Y BLK: C BLK PULSE GEN |
| (3/4) | | |
| (4/4) | | |
| (2/4) | | V CYCLY AGC & CLAMP PULSE GEN |
| 15 | MC14071BCP | V CYCLE AGC & CLAMP PULSE GEN |
| 16(1/4) | MC14011BCP | CROSS HATCH GEN |
| (2/4) | | Y CYCLE AGC & CLAMP PULSE GEN |
| (3/4) | | H OR V BLK, P |
| (4/4) | | SPLIT Y BLK, C BLK PULSE GEN |
| 17 | MC14011BCP | CROSS HATCH GEN |
| 18 | TC4023BP | CROSS HATCH GEN |
| 19(1/4) | MC14081BCP | V COUNT |
| (2/4) | | V SYNC & DELAY |
| (3/4) | | 2fH MULTI |
| (4/4) | | 1H PULSE PROCESS |
| 20 | MC14081BCP | V COUNT |
| 21(1/4) | MC14071BCP | V CYCLE AGC & CLAMP PULSE GEN |
| (2/4) | | V SYNC & DELAY |
| (3/4) | | |
| (4/4) | | V COUNT |
| 22(1/4) | MC14071BCP | 2fH MULTI |
| (2/4) | | V COUNT |
| (3/4) | | |
| (4/4) | | V SYNC & DELAY |

| | | |
|---|---|---|
| IC23(1/3) | TC4073BP | V SYNC & DELAY |
| (2/3) | | |
| (3/3) | | V COUNT |
| 24(1/5) | MC14069UBCP | V SYNC & DELAY |
| (4/5) | | |
| (2/5) | | CROSS HATCH GEN |
| (3/5) | | |
| (5/5) | | V COUNT |
| 25(1/6) | MC14069UBCP | 1H PULSE PROCESS |
| (2/6) | | INV |
| (3/6) | | H OR V BLK.P |
| (4/6) | | Y CYCLE AGC & CLAMP PULSE GEN |
| (5/6) | | CROSS HATCH GEN |
| (6/6) | | |
| 26 | MC14175BCP | 1H PULSE PROCESS |
| 27(1/3) | MC14053BCP | CLAMP PULSE CHANGE SW |
| (2/3) | | CROSS HATCH GEN |
| (3/3) | | H OR V DL SW |
| 28 | TC4520BP | CROSS HATCH GEN |
| 29(1/2) | HD14538BP | B.G.P GEN 1 |
| (2/2) | | Y.CL.P GEN |
| | | |
| | | |
| Q14 | 2SC2785 | CROSS HATCH GEN |
| 15 | 2SC2785 | Y.CL.P GEN |
| 16 | 2SC2785 | Y.CL.P GEN |
| 17 | 2SC2785 | CHROMA CLAMP PULSE GEN |
| 18 | 2SC2785 | CHROMA CLAMP PULSE GEN |
| 19 | 2SA1115 | H CYCLE |
| 20 | 2SC2785 | H CYCLE |
| 21 | 2SC2785 | H CYCLE |
| 22 | 2SC2785 | H CYCLE |
| 23 | 2SA1048 | H CYCLE |
| 24 | 2SC2785 | H CYCLE |
| 25 | 2SC2785 | CHROMA CLAMP PULSE GEN |
| 26 | 2SC2785 | Y.CL.P GEN |
| | | |
| | | |
| D1 | 1SS119 | CROSS HATCH GEN |
| 2 | 1SS119 | H CYCLE |
| 3 | 1SS119 | H CYCLE |
| 7 | 1SS119 | 1H PULSE PROCESS |
| 8 | 1SS119 | V SYNC & DELAY |
| 9 | 1SS119 | 2fH MULTI |
| 11 | MC932 | PROT |

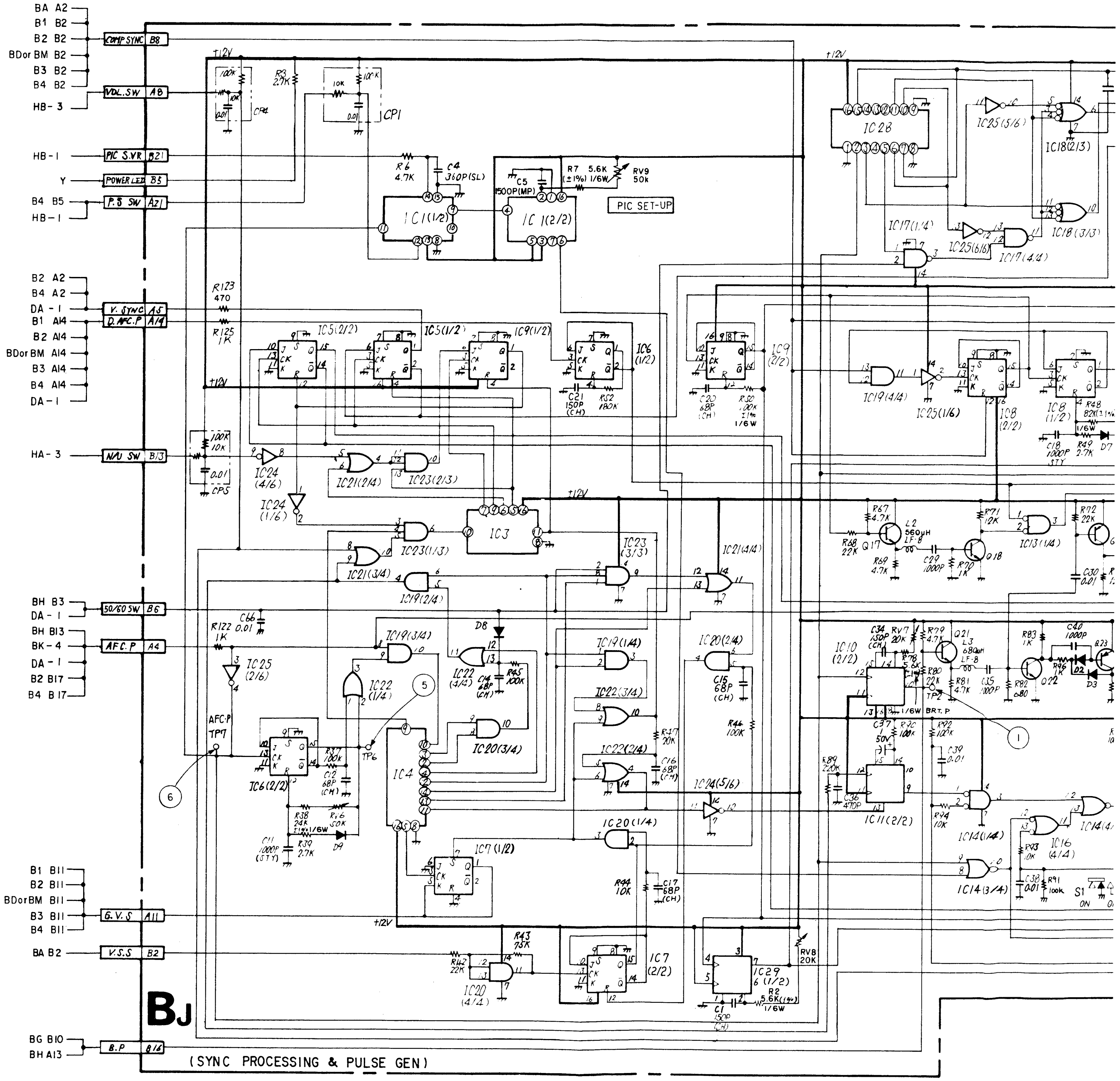

① 12Vp-p (H)
② 12Vp-p (H)


④ 12Vp-p (H)
⑤ 12Vp-p (H)

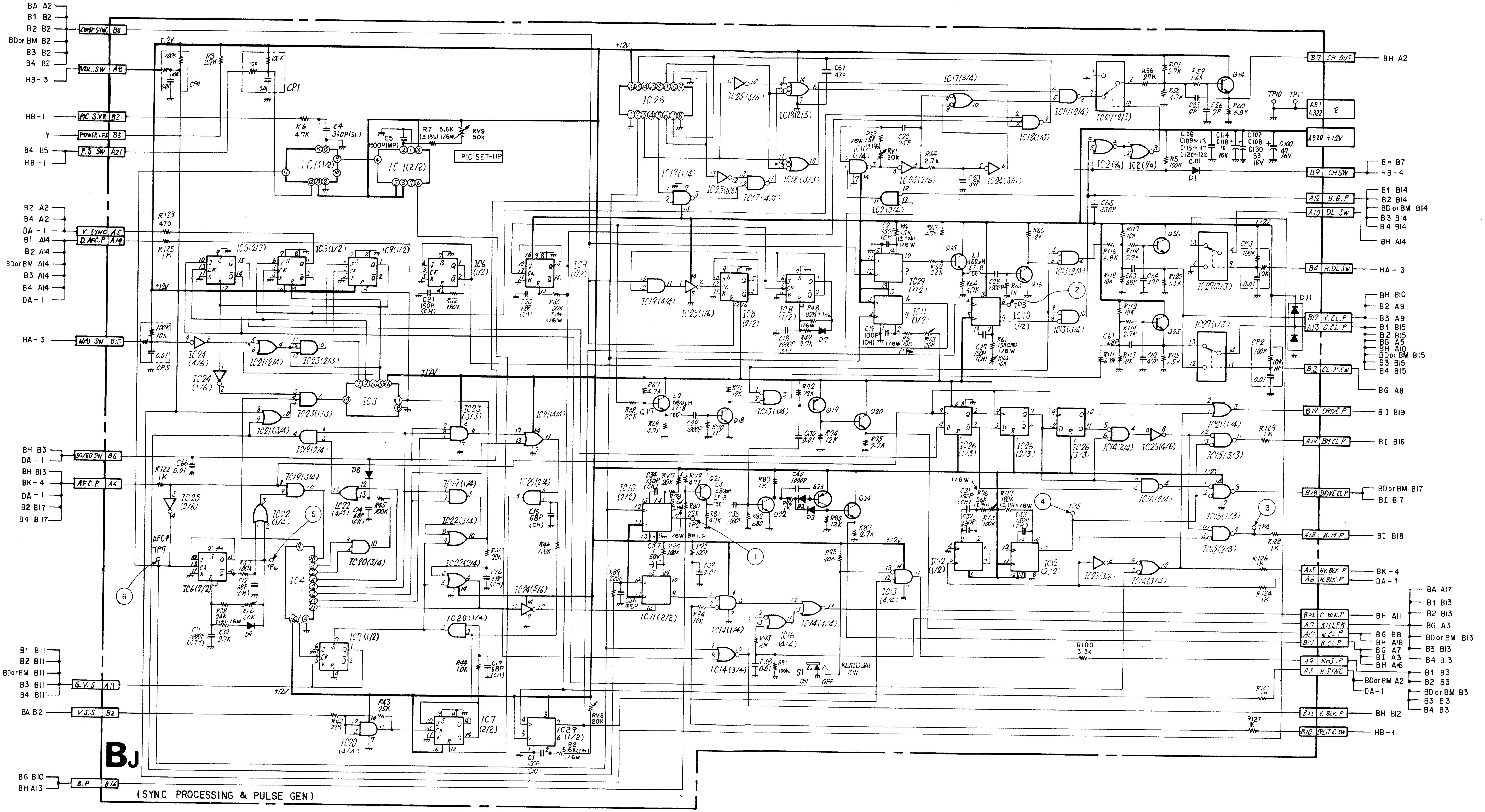

③ 12Vp-p (V)


⑥ 12Vp-p (H)

## BJ board (SYNC PROCESSING & PULSE GEN)

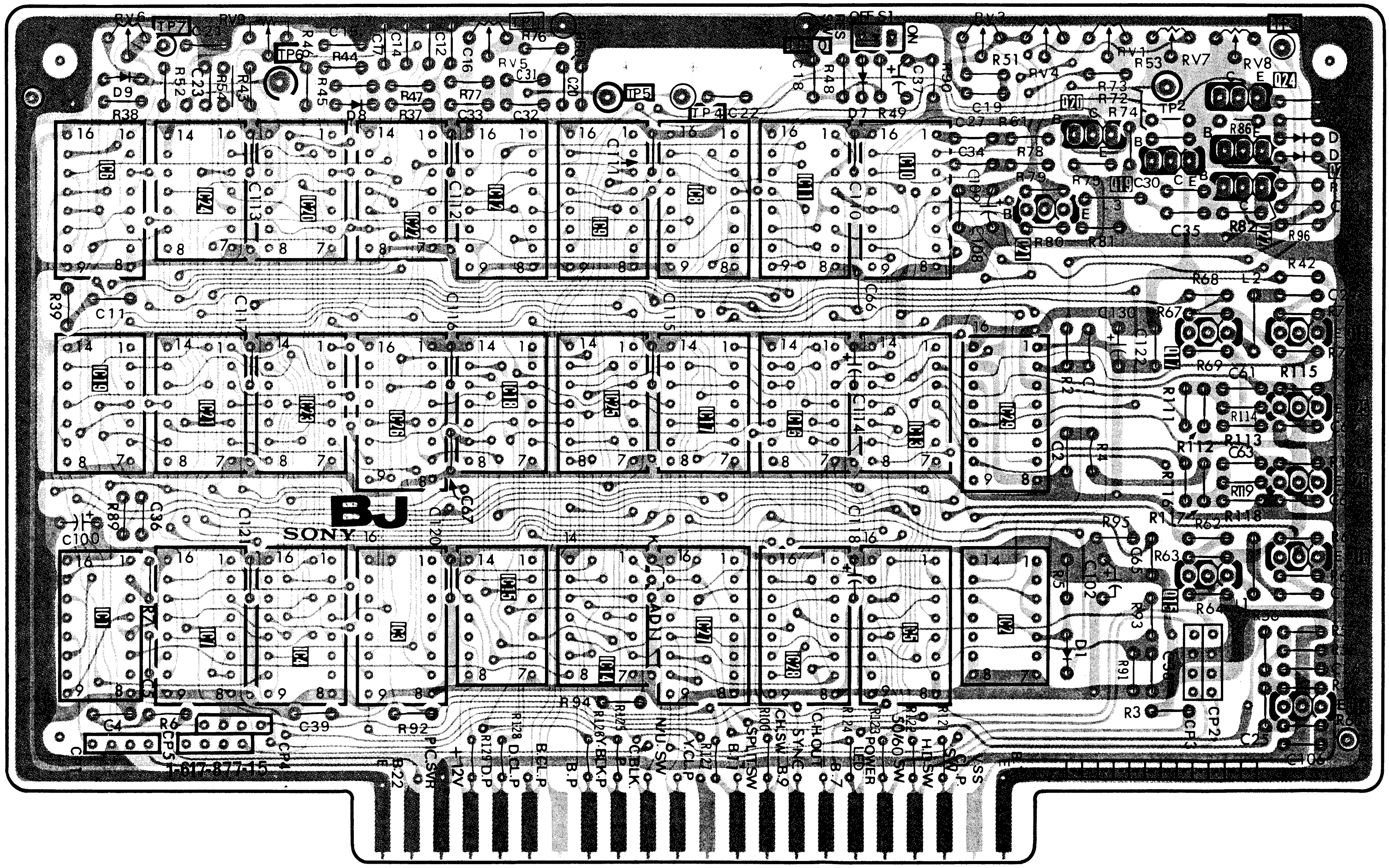

BA A2
B1 B2
B2 B2
BDor BM B2
B3 B2
B4 B2
HB-3
HB-1
Y
B4 B5
HB-1
B2 A2
B4 A2
DA-1
B1 A14
B2 A14
BDor BM A14
B3 A14
B4 A14
DA-1
HA-3
BH B3
DA-1
BH B13
BK-4
DA-1
B2 B17
B4 B17
B1 B11
B2 B11
BDorBM B11
B3 B11
B4 B11
BA B2
BG B10
BH A13
COMP SYNC B8
VDL.SW A8
PIC S.VR B21
POWER LED B5
P.S SW A21
V.SYNC A5
D.AFC.P A14
N/U SW B13
50/60 SW B6
AFC.P A4
G.V.S A11
V.S.S B2
B.P B14
+12V
CP1
R6 4.7K
C4 360P(SL)
C5 1500P(MP)
R7 5.6K (±1%) 1/6W
RV9 50k
IC1(1/2)
IC1(2/2)
PIC SET-UP
IC28
IC25(5/6)
IC18(2/3)
IC17(1/4)
IC25(6/6)
IC17(4/4)
IC18(3/3)
R123 470
R125 1K
IC5(2/2)
IC5(1/2)
IC9(1/2)
IC6(1/2)
IC9(2/2)
IC19(4/4)
IC25(1/6)
IC8(1/2)
IC8(2/2)
IC24(4/6)
IC21(2/4)
IC23(2/3)
IC24(1/6)
IC3
IC23(3/3)
IC21(4/4)
IC23(1/3)
IC21(3/4)
IC19(2/4)
Q17
Q18
IC13(1/4)
C66 0.01
R122 1K
IC19(3/4)
IC25(2/6)
IC22(1/4)
D8
IC19(1/4)
IC20(2/4)
IC22(3/4)
IC20(3/4)
IC4
IC22(2/4)
IC24(5/6)
IC20(1/4)
IC6(2/2)
IC7(1/2)
AFC.P TP7
TP6
TP2
IC10(2/2)
IC11(2/2)
Q21
IC14(4/4)
IC14(1/4)
IC16(4/4)
IC14(3/4)
S1
IC20(4/4)
IC7(2/2)
IC29 6(1/2)
RV8 20K
R2 5.6K(1%) 1/6W
⑤
⑥
①
BJ
(SYNC PROCESSING & PULSE GEN)

## BJ board (SYNC PROCESSING & PULSE GEN)


BA A2
B1 B2
B2 B2
BDor BM B2
B3 B2
B4 B2
HB-3
COMP SYNC B8
VDL.SW A8
HB-1
PIC S.VR B21
Y
POWER LED B5
B4 B5
P.S SW A21
HB-1
B2 A2
B4 A2
DA-1
B1 A14
B2 A14
BDor BM A14
B3 A14
B4 A14
DA-1
V.SYNC A5
D.AFC.P A14
HA-3
N/U SW B13
BH B3
DA-1
50/60SW B6
BH B13
BK-4
DA-1
B2 B17
B4 B17
AFC.P A4
B1 B11
B2 B11
BDor BM B11
B3 B11
B4 B11
G.V.S A11
BA B2
V.S.S B2
BG B10
BH A13
B.P B16
(SYNC PROCESSING & PULSE GEN)
BJ
+12V
PIC SET-UP
AFC.P TP7
TP6
TP2
TP3
TP4
TP5
TP10
TP11
BRT.P
RESIDUAL SW
S1
ON
OFF
IC1(1/2)
IC1(2/2)
IC3
IC4
IC5(1/2)
IC5(2/2)
IC6(1/2)
IC6(2/2)
IC7(1/2)
IC7(2/2)
IC8(1/2)
IC8(2/2)
IC9(1/2)
IC9(2/2)
IC10(1/2)
IC10(2/2)
IC11(1/2)
IC11(2/2)
IC12(1/2)
IC12(2/2)
IC26(1/3)
IC26(2/3)
IC26(3/3)
IC27(1/3)
IC27(2/3)
IC27(3/3)
IC28
IC29(1/2)
IC29(2/2)
B7 CH OUT
BH A2
AB1
AB22
E
AB20 +12V
B9 CH SW
BH B7
HB-4
A12 B.G.P
A10 DL SW
B1 B14
B2 B14
BDor BM B14
B3 B14
B4 B14
BH A14
B4 H.DL.SW
HA-3
B12 Y.CL.P
A13 C.CL.P
BH B10
B2 A9
B3 A9
B1 B15
B2 B15
BG A5
BH A10
BDor BM B15
B3 B15
B4 B15
B3 CL.P.SW
BG A8
B19 DRIVE.P
BI B19
A19 BM CL.P
BI B16
B18 DRIVE CL.P
BDor BM B17
BI B17
A18 B.M.P
BI B18
A15 HV BLK.P
BK-4
A6 H.BLK.P
DA-1
B14 C.BLK.P
BH A11
A7 KILLER
A17 W.CL.P
B17 B CL.P
BG B8
BH A18
BG A7
BI A3
BH A16
BA A17
B1 B13
B2 B13
BG A3
BDor BM B13
B3 B13
B4 B13
A9 RES.P
A3 H SYNC
BDor BM A2
DA-1
B1 B3
B2 B3
BDor BM B3
B3 B3
B4 B3
B15 V.BLK.P
BH B12
B10 SPLIT.S.SW
HB-1
D1
D11
Q14
Q15
Q16
Q17
Q18
Q19
Q20
Q21
Q22
Q24
Q25
Q26
RV1
RV3
RV5
RV7
RV8
RV9
R100 3.3k
①
②
③
④
⑤
⑥

BJ board (SYNC PROCESSING & PULSE GEN)

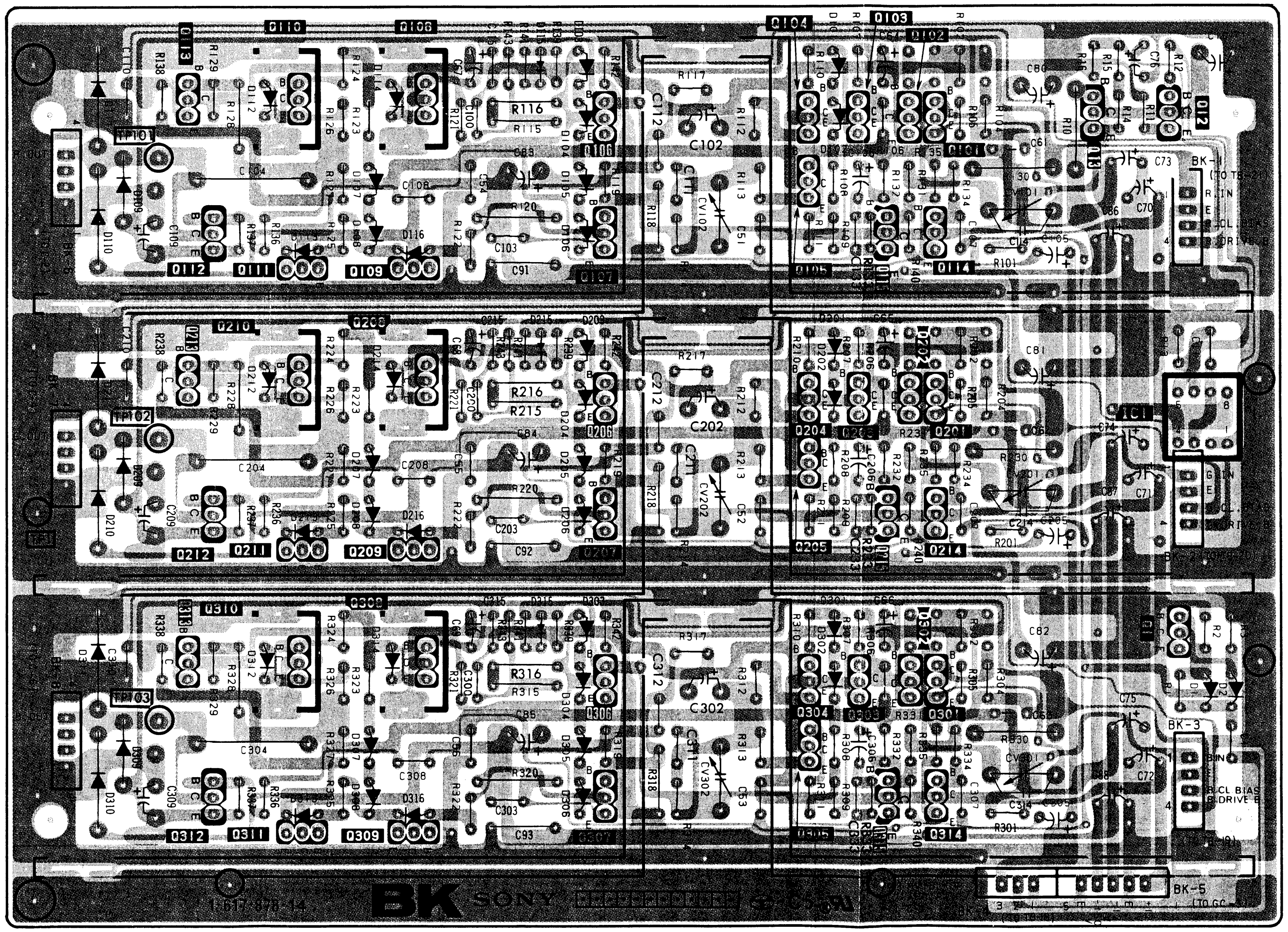
| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IC | 6<br>19<br>1 | 24<br>21<br>7 | 20<br>23<br>4 | 22<br>26<br>3 | 12<br>18<br>15 | 9<br>25<br>14 | 8<br>17<br>27 | 11<br>16<br>28 | 10<br>13<br>5 | 29<br>2 | | | | | | |
| Q | | | | | | | | | | | 21 | 20 | 19 | 17<br>15 | 24<br>23<br>22 | 18<br>25<br>26<br>16<br>14 |
| D | 9 | | | 8 | | | 11 | | 7 | | 1 | | | | | 3<br>2 |
| TP<br>ADJ | RV6 | TP7 | TP6 | | RV5 | TP11<br>TP5 | TP4 | TP10 | | RV3 | RV4 | RV1 | RV7<br>TP2 | RV8 | | TP3 |


BJ
SONY
1-617-877-15
RV6
TP7
RV5
TP5
TP4
TP10
S1
RV3
RV4
RV1
RV7
RV8
TP2
TP3
TP6
CP5
CP4
CP2
CP3

- ▨ : Conductor side pattern
- ▨ : Component side pattern

## BK board (VIDEO OUT AMP)

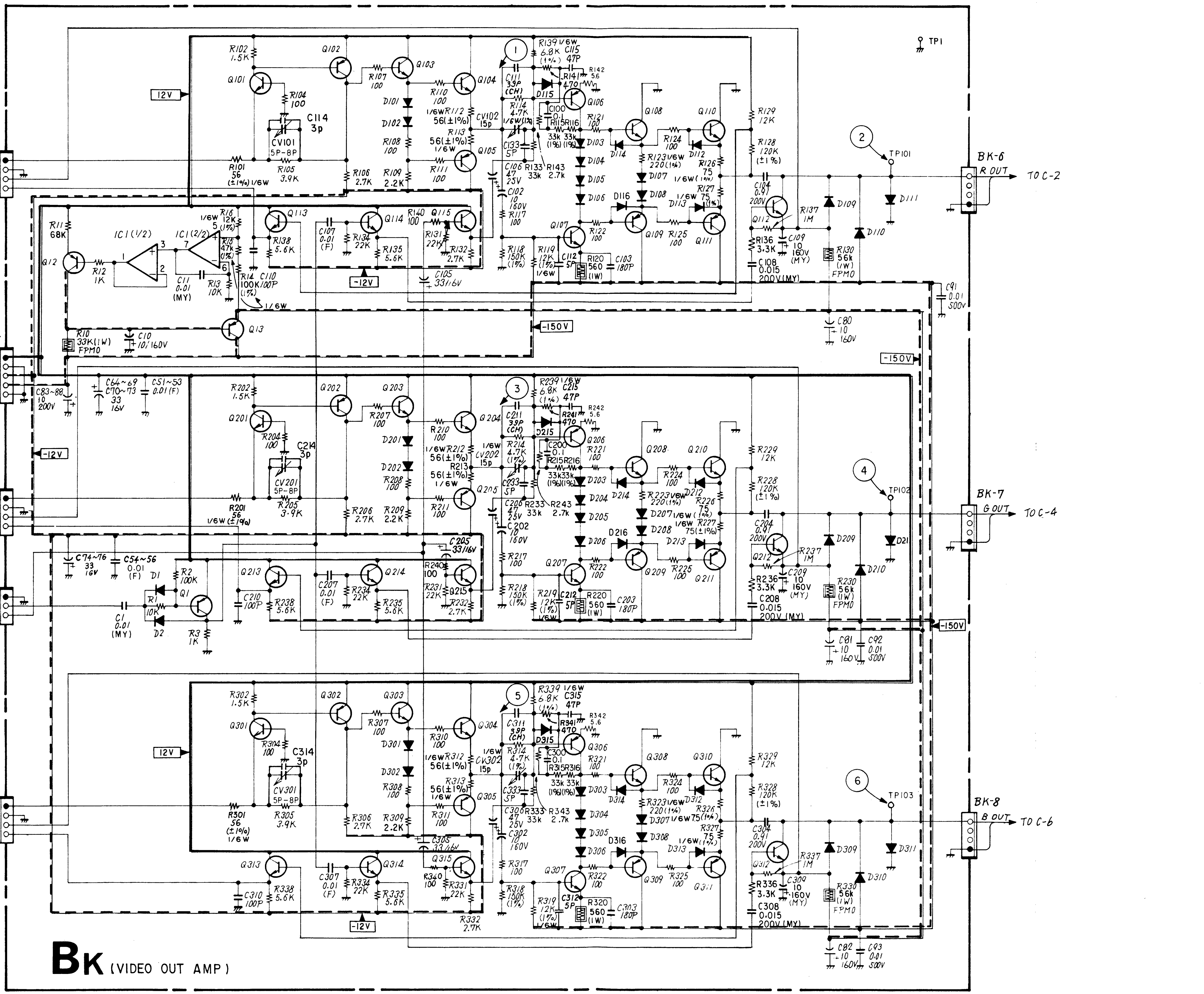
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| IC | | | | | | | | | 1 |
| Q | | 113<br>112<br>213<br>212<br>313<br>312 | 110<br>111<br>210<br>211<br>310<br>311 | 108<br>109<br>208<br>209<br>308<br>309 | 106<br>107<br>206<br>207<br>306<br>307 | | 104 103 102 101<br>105 115 114<br>204 203 202 201<br>205 215 214<br>304 303 302 301<br>305 315 314 | 13 | 12<br>1 |
| D | 111<br>109 110<br>211<br>209 210<br>311<br>309 310 | | 112<br>113<br>212<br>213<br>312<br>313 | 107 114<br>108 116<br>207 214<br>208 216<br>307 314<br>308 316 | 115 104 103<br>106 105<br>215 204 203<br>206 205<br>315 304 303<br>306 305 | | 101<br>102<br>201<br>202<br>301<br>302 | | 1 2 |
| TP<br>ADJ | TP1 | TP101<br>TP102<br>TP103 | | | | CV102<br>CV202<br>CV302 | | CV101<br>CV201<br>CV301 | |


Q113
Q110
Q108
Q104
Q103
Q102
Q101
Q12
Q13
TP101
TP102
TP103
R116
R115
R117
C102
C112
CV102
R216
R215
R217
C202
C212
CV202
R316
R315
R317
C302
C312
CV302
C204
C208
C304
C308
Q112
Q111
Q109
Q107
Q106
Q105
Q114
Q212
Q211
Q209
Q207
Q206
Q210
Q208
Q204
Q205
Q201
Q214
Q312
Q311
Q309
Q307
Q306
Q310
Q308
Q304
Q305
Q301
Q314
IC1
BK-1
BK-3
BK-5
(TO GC-
CL BIAS
DRIVE B
BK
SONY

● ░ : Conductor side pattern

● ▒ : Component side pattern

BK board (VIDEO OUT AMP)


(TO TB-21) BK-1
R IN
E
R.CL.B
R.DRIVE
(TO GC-3) BK-5
+12V
E
-12V
-150V
E
(TO TB-20) BK-2
G.IN
E
G.CL.B
G.DRIVE
(TO TB-18) BK-4
E
AFC.P
H.V.BLK
(TO TB-19) BK-3
B.IN
E
B.CL.B
B.DRIVE
BK-6
R OUT
TO C-2
BK-7
G OUT
TO C-4
BK-8
B OUT
TO C-6
TP1
TP101
TP102
TP103
①
②
③
④
⑤
⑥
12V
-12V
-150V
IC1 (1/2)
IC1 (2/2)
Q12
Q13
Q1
Q101
Q102
Q103
Q104
Q105
Q106
Q107
Q108
Q109
Q110
Q111
Q112
Q113
Q114
Q115
Q201
Q202
Q203
Q204
Q205
Q206
Q207
Q208
Q209
Q210
Q211
Q212
Q213
Q214
Q215
Q301
Q302
Q303
Q304
Q305
Q306
Q307
Q308
Q309
Q310
Q311
Q312
Q313
Q314
Q315
CV101 5P-8P
C114 3p
CV201 5P-8P
C214 3p
CV301 5P-8P
C314 3p
R10 33K (1W) FPMO
C10 10/160V
C83~88 10 200V
C64~69 C70~73 33 16V
C51~53 0.01 (F)
C74~76 33 16V
C54~56 0.01 (F)
C1 0.01 (MY)
C91 0.01 500V
C80 10 160V
C81 10 160V
C92 0.01 500V
C82 10 160V
C93 0.01 500V
R139 1/6W 6.8K (1%)
C115 47P
R141 470
R142 5.6
C104 0.91 200V
R137 1M
R130 56k (1W) FPMO
C108 0.015 200V (MY)
C109 10 160V (MY)
R136 3.3K
R129 12K
R128 120K (±1%)
D109
D110
D111
D209
D210
D211
D309
D310
D311
R120 560 (1W)
C103 180P
C105 33/16V
C205 33/16V
C305 33/16V
Bk (VIDEO OUT AMP)

BK BO

| IC1 |
|---|
| |
| |
| Q1 |
| 12 |
| 13 |
| 10 |
| 10 |
| 10 |
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| 11 |
| 11 |
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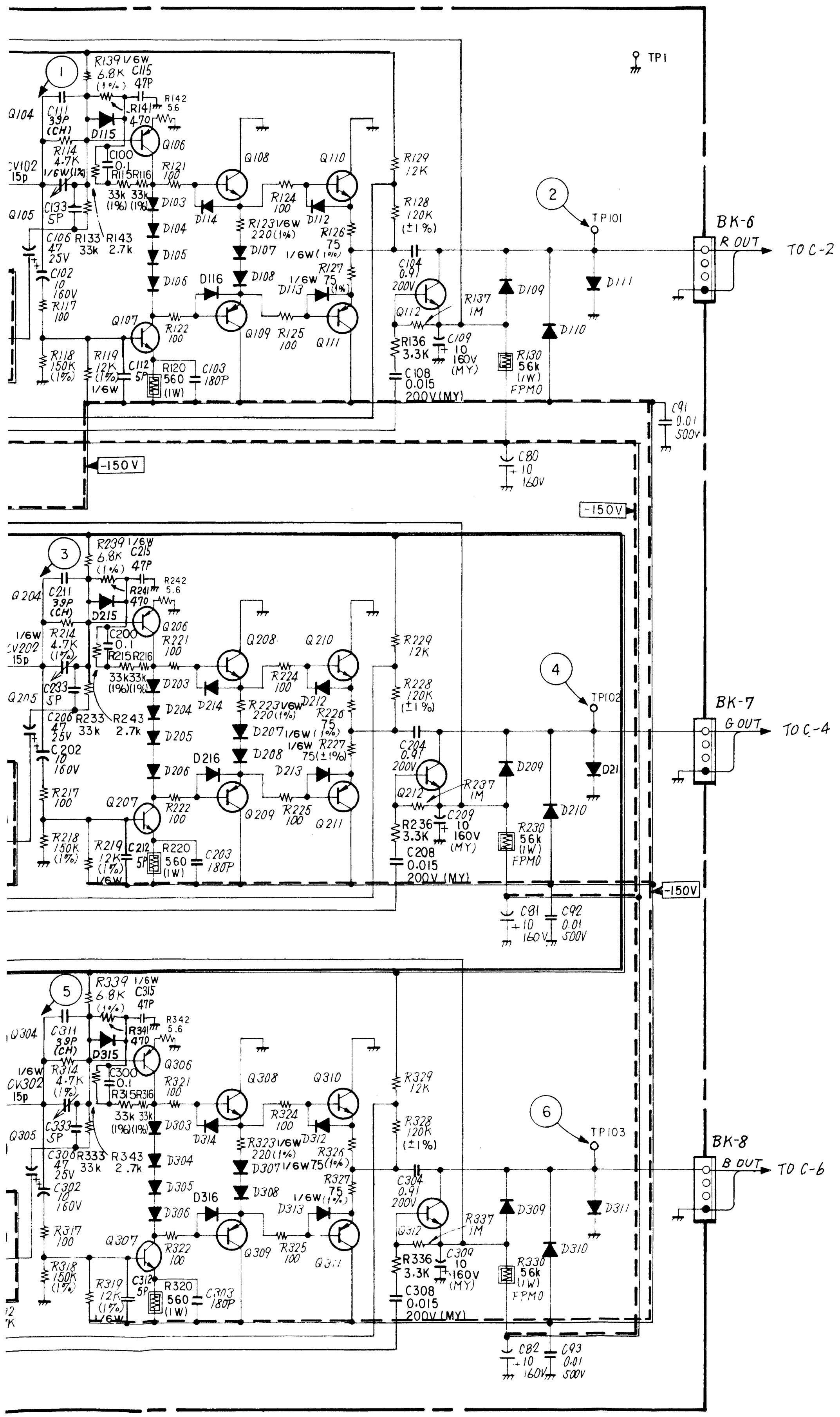
| 31 |


TP1
①
②
③
④
⑤
⑥
TP101
TP102
TP103
BK-6
R OUT
TO C-2
BK-7
G OUT
TO C-4
BK-8
B OUT
TO C-6
-150V
Q104
Q105
Q106
Q107
Q108
Q109
Q110
Q111
Q112
Q204
Q205
Q206
Q207
Q208
Q209
Q210
Q211
Q212
Q304
Q305
Q306
Q307
Q308
Q309
Q310
Q311
Q312
CV102 15p
CV202 15p
CV302 15p
R139 1/6W 6.8K (1%)
C115 47P
R142 5.6
R141 470
C111 39P (CH)
R114 4.7K 1/6W (1%)
C100 0.1
R115 R116 33k 33k (1%)(1%)
C133 5P
C106 47 25V
R133 33k
R143 2.7k
C102 10 160V
R117 100
R118 150K (1%)
R119 12K (1%) 1/6W
C112 5P
R120 560 (1W)
C103 180P
R121 100
R122 100
R124 100
R123 1/6W 220 (1%)
R125 100
R126 75
R127 75 1/6W (1%)
R129 12K
R128 120K (±1%)
C104 0.47 200V
R137 1M
R136 3.3K
C109 10 160V (MY)
C108 0.015 200V (MY)
R130 56k (1W) FPMO
C91 0.01 500V
C80 10 160V
C81 10 160V
C92 0.01 500V
C82 10 160V
C93 0.01 500V
D103
D104
D105
D106
D107
D108
D109
D110
D111
D112
D113
D114
D115
D116
D203
D204
D205
D206
D207
D208
D209
D210
D211
D212
D213
D214
D215
D216
D303
D304
D305
D306
D307
D308
D309
D310
D311
D312
D313
D314
D315
D316

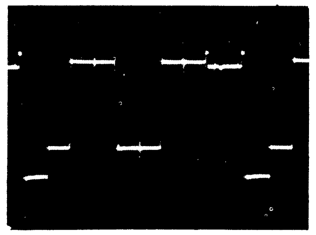
5-40

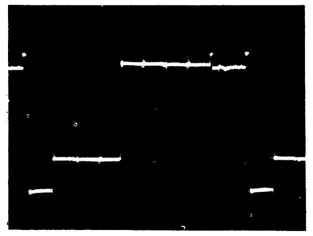
BK BOARD

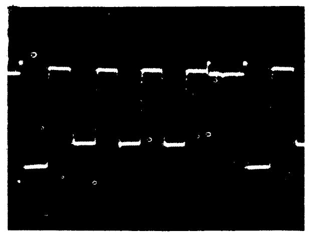
| | | |
|---|---|---|
| IC1 | RC4558DQ | LIPPLE FILTER |
| | | |
| | | |
| Q1 | 2SA844 | INVERTER |
| 12 | 2SA1091 | LIPPLE FILTER |
| 13 | 2SA1091 | LIPPLE FILTER |
| 101 | 2SC2668 | R-PRE AMP. |
| 102 | 2SA844 | R-PRE AMP. |
| 103 | 2SC403SP | BUFF. |
| 104 | 2SC403SP | BUFF. |
| 105 | 2SA844 | BUFF. |
| 106 | 2SA1406 | R-VIDEO OUT |
| 107 | 2SC3600 | R-VIDEO OUT |
| 108 | 2SC3600 | BUFF. |
| 109 | 2SA1406 | BUFF. |
| 110 | 2SC3600 | BUFF. |
| 111 | 2SA1406 | BUFF. |
| 112 | 2SC2551 | R-CLAMP |
| 113 | 2SC403SP | R-CLAMP |
| 114 | 2SC403SP | R-CLAMP |
| 115 | 2SC403SP | BLANK PULSE BUFF. |
| 201 | 2SC2668 | G-PRE AMP. |
| 202 | 2SA844 | G-PRE AMP. |
| 203 | 2SC403SP | BUFF. |
| 204 | 2SC403SP | BUFF. |
| 205 | 2SA844 | BUFF. |
| 206 | 2SA1406 | G-VIDEO OUT |
| 207 | 2SC3600 | G-VIDEO OUT |
| 208 | 2SC3600 | BUFF. |
| 209 | 2SA1406 | BUFF. |
| 210 | 2SC3600 | BUFF. |
| 211 | 2SA1406 | BUFF. |
| 212 | 2SC2551 | G-CLAMP |
| 213 | 2SC403SP | G-CLAMP |
| 214 | 2SC403SP | G-CLAMP |
| 215 | 2SC403SP | BLANK PULSE BUFF. |
| 301 | 2SC2668 | B-PRE AMP. |
| 302 | 2SA844 | B-PRE AMP. |
| 303 | 2SC403SP | BUFF. |
| 304 | 2SC403SP | BUFF. |
| 305 | 2SA844 | BUFF. |
| 306 | 2SA1406 | B-VIDEO OUT |
| 307 | 2SC3600 | B-VIDEO OUT |
| 308 | 2SC3600 | BUFF. |
| 309 | 2SA1406 | BUFF. |
| 310 | 2SC3600 | BUFF. |
| 311 | 2SA1406 | BUFF. |
| 312 | 2SC2551 | B-CLAMP |
| 313 | 2SC403SP | B-CLAMP |
| 314 | 2SC403SP | B-CLAMP |
| 315 | 2SC403SP | BLANK PULSE BUFF. |

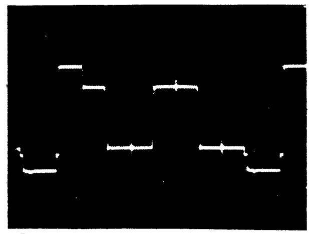
| | | |
|---|---|---|
| D1 | 1SS119 | INVERTER |
| 2 | 1SS119 | INVERTER |
| 101 | 1SS119 | BIAS |
| 102 | 1SS119 | BIAS |
| 103 | 1SS119 | BIAS |
| 104 | 1SS119 | BIAS |
| 105 | 1SS119 | BIAS |
| 106 | 1SS119 | BIAS |
| 107 | 1SS119 | BIAS |
| 108 | 1SS119 | BIAS |
| 109 | 1SS83 | CLAMP |
| 110 | RU-1A | PROTECTOR |
| 111 | RU-1A | PROTECTOR |
| 112 | 1SS119 | PROTECTOR |
| 113 | 1SS119 | PROTECTOR |
| 114 | 1SS119 | PROTECTOR |
| 115 | 1SS119 | PROTECTOR |
| 116 | 1SS119 | PROTECTOR |
| 201 | 1SS119 | BIAS |
| 202 | 1SS119 | BIAS |
| 203 | 1SS119 | BIAS |
| 204 | 1SS119 | BIAS |
| 205 | 1SS119 | BIAS |
| 206 | 1SS119 | BIAS |
| 207 | 1SS119 | BIAS |
| 208 | 1SS119 | BIAS |
| 209 | 1SS83 | CLAMP |
| 210 | RU-1A | PROTECTOR |
| 211 | RU-1A | PROTECTOR |
| 212 | 1SS119 | PROTECTOR |
| 213 | 1SS119 | PROTECTOR |
| 214 | 1SS119 | PROTECTOR |
| 215 | 1SS119 | PROTECTOR |
| 216 | 1SS119 | PROTECTOR |
| 301 | 1SS119 | BIAS |
| 302 | 1SS119 | BIAS |
| 303 | 1SS119 | BIAS |
| 304 | 1SS119 | BIAS |
| 305 | 1SS119 | BIAS |
| 306 | 1SS119 | BIAS |
| 307 | 1SS119 | BIAS |
| 308 | 1SS119 | BIAS |
| 309 | 1SS83 | CLAMP |
| 310 | RU-1A | PROTECTOR |
| 311 | .RU-1A | PROTECTOR |
| 312 | 1SS119 | PROTECTOR |
| 313 | 1SS119 | PROTECTOR |
| 314 | 1SS119 | PROTECTOR |
| 315 | 1SS119 | PROTECTOR |
| 316 | 1SS119 | PROTECTOR |
| | | |

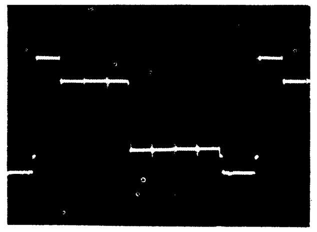
5 DIAGRAMS

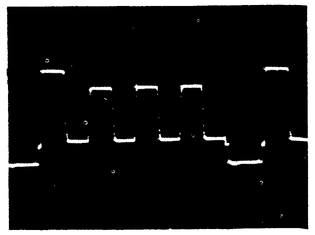

① 3.6Vp-p (H)


③ 4.0Vp-p (H)


⑤ 3.0Vp-p (H)

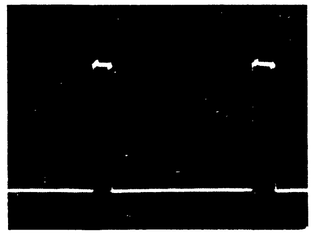

② 60Vp-p (H)

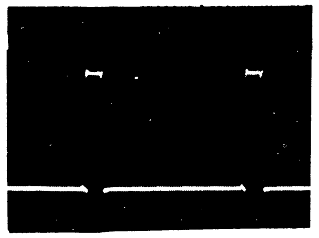

④ 66Vp-p (H)

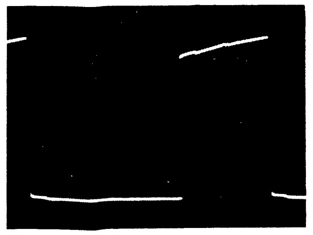

⑥ 54Vp-p (H)

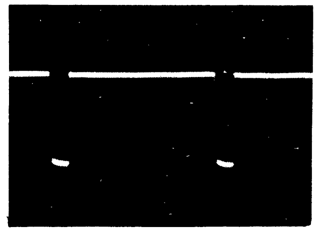
DA BOARD

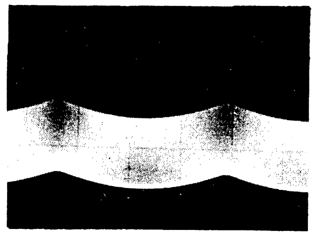
| | | |
|---|---|---|
| IC1 | MB84027B | H. BLK. WIDTH |
| 2 | HD14011BP | H. DELAY. POSITION |
| 3 | TC4093BP | BUFFER |
| 4 | CX-158 | H. OSC AFC |
| 5 | TL082CP | H. LIN. GEN. |
| 6 | TL082CP | H. LIN. GEN. |
| 7 | MC1496P | H. LIN. MOD. |
| 8 | LM2903DQ | 1/2H, 1/2V. GEN. |
| 9 | TL082CP | H. BLK. PHASE |
| 10 | LM2903DQ | T & B. H. PHASE |
| 11 | TL082CP | T & B PIN. GEN. |
| 12 | MC1496P | T & B. PIN MOD. |
| 13 | uPD4066BC | 50/60 SW. |
| 14 | uPD4066BC | DEF. LEVEL. SW |
| 15 | uPD4066BC | DEF. LEVEL. SW |
| 16 | uPD4066BC | DEF. LEVEL. SW |
| 17 | RC4558DQ | BUFFER |
| 18 | CX23025 | 50/60 SELECTOR |
| 19 | RC4558DQ | V. SAWTOOTH. GEN. |
| 20 | RC4558DQ | SIDE. PIN. GEN. |
| 21 | RC4558DQ | SIDE. PIN. GEN. |
| 22 | RC4558DQ | V. SAWTOOTH GEN. |
| 23 | RC4558DQ | BUFFER |
| 24 | uPC78M12H | +12V REG. |
| 25 | uPC79M12H | -15V REG. |
| | TL082CP | BUFFER |
| | | |
| Q1 | DTC144ES | H. OSC. SW |
| 2 | 2SC2785 | H. LIN. GEN |
| 3 | 2SC2785 | H. LIN. GEN |
| 4 | 2SC2785 | 1/2H. P. GEN. |
| 5 | 2SC2785 | H. BLK. GEN. |
| 6 | 2SC2785 | H. BLK. GEN. |
| 7 | 2SC2785 | T & B PIN. PHASE |
| 8 | 2SC2785 | T & B PIN. GEN. |
| 9 | 2SC2785 | T & B PIN. GEN. |
| 10 | 2SC3068 | T & B PIN. MOD. |
| | | |
| 12 | DTC144ES | 50/60 SW |
| 13 | DTC144ES | SCAN. SW |
| 14 | DTC144ES | SCAN. SW |
| 15 | DTC144ES | SCAN. SW |
| 16 | DTC144ES | SCAN. SW |
| 17 | DTC144ES | 50/60 SW |
| 18 | 2SC2785 | BUFFER |
| 19 | 2SC2785 | V. SAW. GEN |
| 20 | 2SC2785 | V. SAW. CLIP |
| 21 | 2SC2785 | SIDE PIN GEN |
| 22 | 2SC2785 | SIDE PIN GEN |
| 23 | 2SC2785 | SIDE PIN GEN |
| 24 | 2SC2785 | V. SAW GEN. |
| | | |
| | | |
| D1 | 1SS148 | H. DELAY SW |
| 2 | 1SS148 | H. DELAY SW |
| 3 | RD6.8EB | CLIPPER |
| 4 | RD6.8EB | CLIPPER |
| 5 | RD12E-B | 50/60 SW |
| 6 | RD12E-B | SCAN SW |
| 7 | 1SS148 | SCAN SW |
| 8 | 1SS148 | SCAN SW |
| 9 | RD7.5E-B | +7.5V REG. |
| 10 | RD7.5E-B | -7.5V REG. |
| 11 | RD15E-B | 50/60 SW. |
| 12 | RD5.6E-B | V. SAW. CLIP |
| 13 | 1SS148 | V. SAW. CLIP |
| 14 | 1SS148 | V. SAW. CLIP |
| 15 | 1SS148 | AFC.CLIP |
| 18 | 1SS148 | PROT |
| 19 | 1SS148 | |

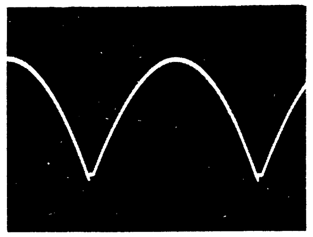

① 12Vp-p (H)

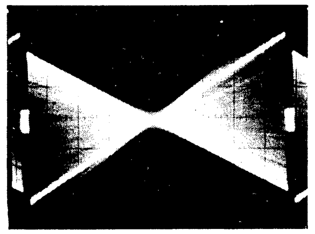

② 12Vp-p (H)

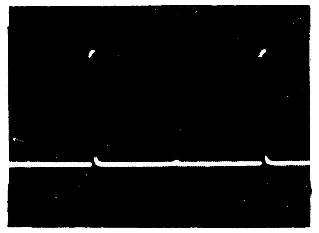

③ 9Vp-p(H)

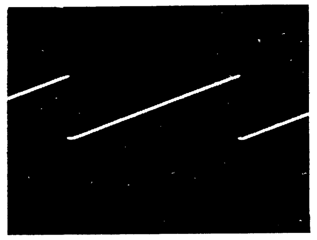

④ 9Vp-p(H)

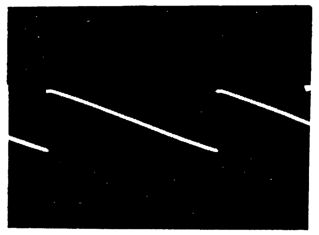

⑤ 3.5Vp-p (H)


⑥ 1.2Vp-p (V)

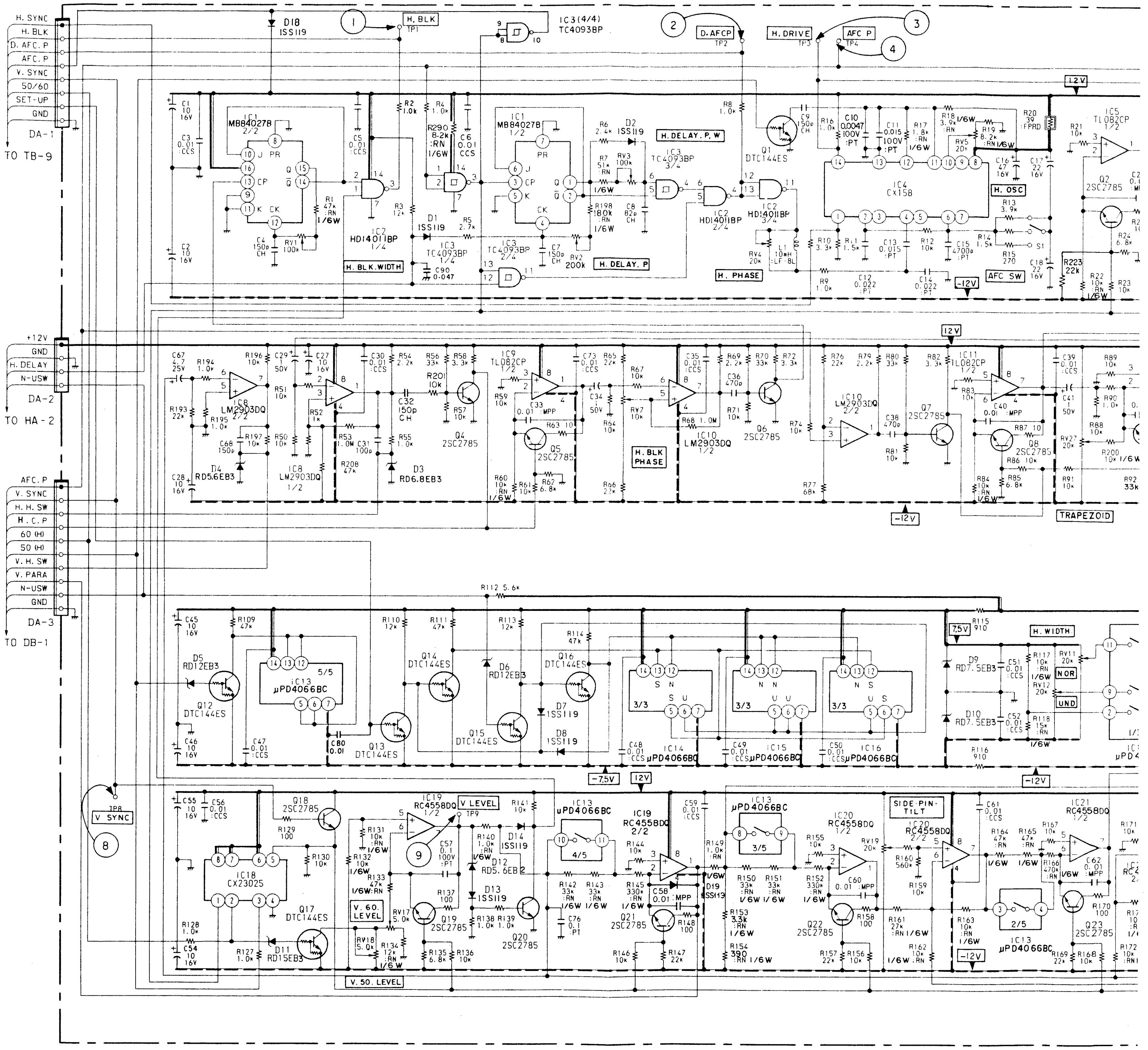

⑦ 0.5Vp-p(V)


⑧ 12Vp-p (V)

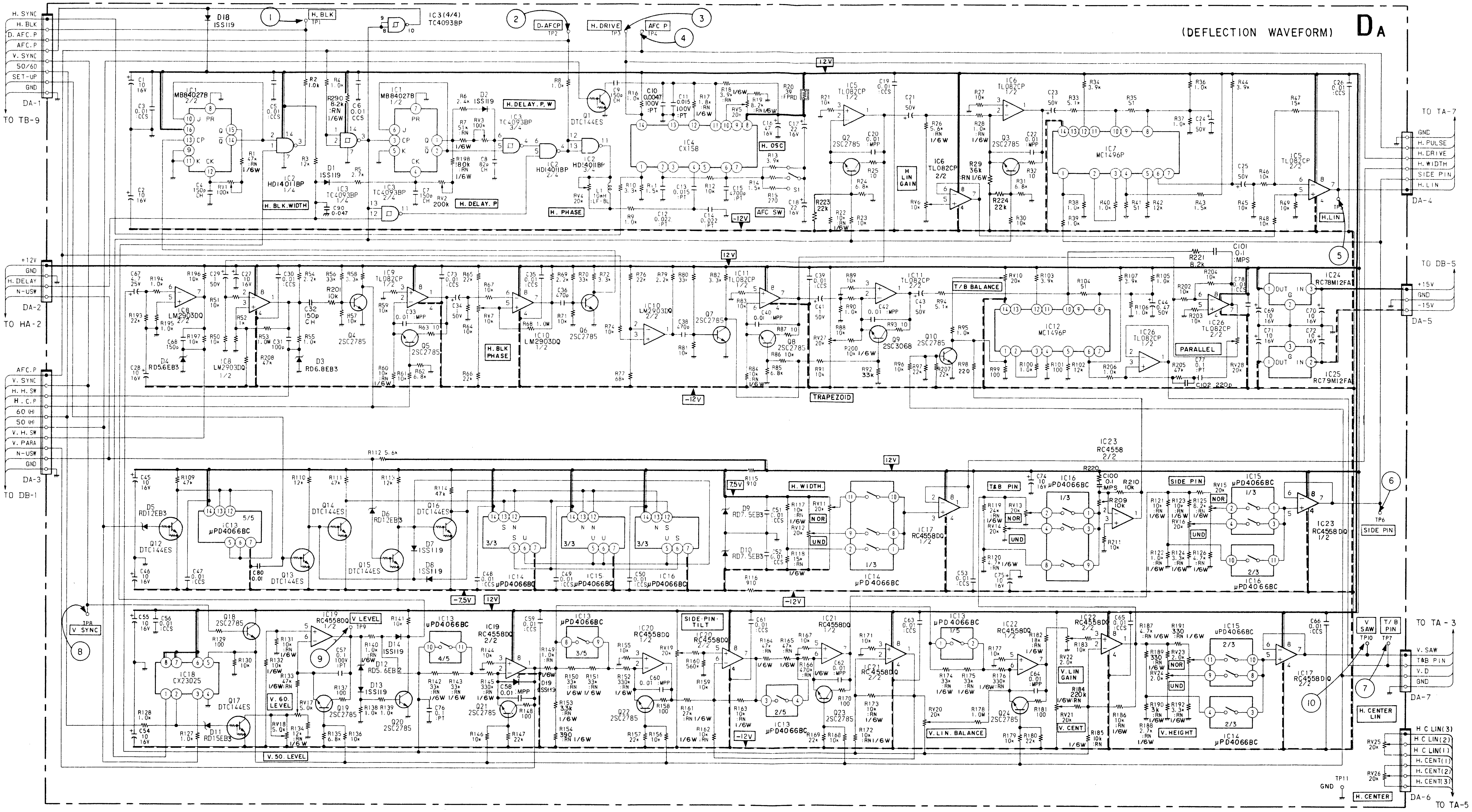

⑨ 12Vp-p(V)


⑩ 6Vp-p(V)

**DA board (DEFLECTION WAVEFORM)**

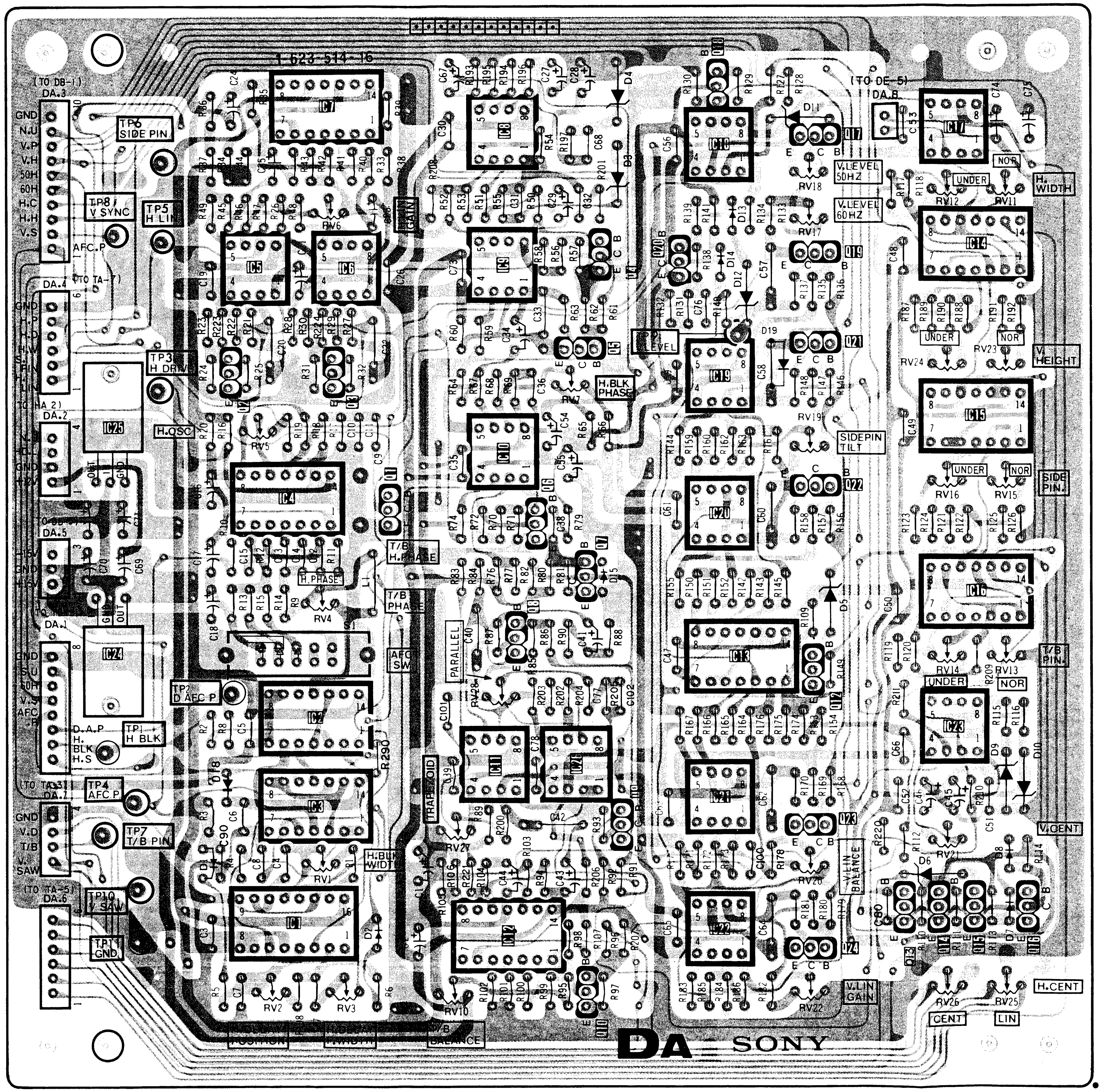

H. SYNC
H. BLK
D. AFC. P
AFC. P
V. SYNC
50/60
SET-UP
GND
DA-1
TO TB-9
+12V
GND
H. DELAY
N-USW
DA-2
TO HA-2
AFC. P
V. SYNC
V. H. SW
H. C. P
60 (H)
50 (H)
V. H. SW
V. PARA
N-USW
GND
DA-3
TO DB-1
IC1 MB84027B
IC2 HD14011BP
IC3 TC4093BP
IC4 CX158
IC5 TL082CP
IC8 LM2903DQ
IC9 TL082CP
IC10 LM2903DQ
IC11 TL082CP
IC13 μPD4066BC
IC14 μPD4066BC
IC15 μPD4066BC
IC16 μPD4066BC
IC18 CX23025
IC19 RC4558DQ
IC20 RC4558DQ
IC21 RC4558DQ
H. BLK. WIDTH
H. DELAY. P. W
H. DELAY. P
H. PHASE
H. OSC
AFC SW
D. AFCP
H. DRIVE
AFC P
H. BLK PHASE
TRAPEZOID
H. WIDTH
NOR
UND
V. SYNC
V. LEVEL
V. 60. LEVEL
V. 50. LEVEL
SIDE-PIN-TILT
12V
-12V
7.5V
-7.5V

**DA board (DEFLECTION WAVEFORM)**


(DEFLECTION WAVEFORM)
DA
H. SYNC
H. BLK
D. AFC. P
AFC. P
V. SYNC
50/60
SET-UP
GND
DA-1
TO TB-9
+12V
GND
H. DELAY
N-US
DA-2
TO HA-2
AFC. P
V. SYNC
H. H. SW
H. C. P
60 (H)
50 (H)
V. H. SW
V. PARA
N-US
GND
DA-3
TO DB-1
TO TA-7
GND
H. PULSE
H. DRIVE
H. WIDTH
SIDE PIN
H. LIN
DA-4
TO DB-5
+15V
GND
-15V
DA-5
TO TA-3
V. SAW
T&B PIN
V. D
GND
DA-7
H C LIN(3)
H C LIN(2)
H C LIN(1)
H. CENT(1)
H. CENT(2)
H. CENT(3)
DA-6
TO TA-5
TP11
GND
H. CENTER
H. BLK
TP1
D. AFCP
TP2
H. DRIVE
TP3
AFC P
TP4
D18
1SS119
IC3 (4/4)
TC4093BP
IC1
MB84027B
2/2
IC1
MB84027B
1/2
IC2
HD14011BP
1/4
IC3
TC4093BP
1/4
IC3
TC4093BP
2/4
IC3
TC4093BP
3/4
IC2
HD14011BP
2/4
IC2
HD14011BP
3/4
Q1
DTC144ES
IC4
CX158
H. BLK. WIDTH
H. DELAY. P. W
H. DELAY. P
H. PHASE
H. OSC
AFC SW
12V
-12V
IC5
TL082CP
1/2
Q2
2SC2785
H LIN GAIN
IC6
TL082CP
1/2
IC6
TL082CP
2/2
Q3
2SC2785
IC7
MC1496P
IC5
TL082CP
2/2
H. LIN
TP5
IC8
LM2903DQ
2/2
IC8
LM2903DQ
1/2
Q4
2SC2785
Q5
2SC2785
IC9
TL082CP
1/2
IC10
LM2903DQ
1/2
IC10
LM2903DQ
2/2
H. BLK PHASE
Q6
2SC2785
Q7
2SC2785
IC11
TL082CP
1/2
IC11
TL082CP
2/2
Q8
2SC2785
Q9
2SC3068
Q10
2SC2785
TRAPEZOID
T/B BALANCE
IC12
MC1496P
IC26
TL082CP
1/2
IC26
TL082CP
2/2
PARALLEL
IC24
RC78M12FA
IC25
RC79M12FA
IC23
RC4558
2/2
D5
RD12EB3
Q12
DTC144ES
IC13
μPD4066BC
5/5
Q13
DTC144ES
Q14
DTC144ES
D6
RD12EB3
Q15
DTC144ES
Q16
DTC144ES
D7
1SS119
D8
1SS119
IC14
μPD4066BC
IC15
μPD4066BC
IC16
μPD4066BC
-7.5V
7.5V
H. WIDTH.
D9
RD7.5EB3
D10
RD7.5EB3
NOR
UND
IC17
RC4558DQ
1/2
IC14
μPD4066BC
1/3
T&B PIN
IC16
μPD4066BC
1/3
SIDE PIN
IC15
μPD4066BC
1/3
IC23
RC4558DQ
1/2
TP6
SIDE PIN
TP8
V. SYNC
IC18
CX23025
Q17
DTC144ES
D11
RD15EB3
Q18
2SC2785
IC19
RC4558DQ
1/2
V LEVEL
TP9
V. 60. LEVEL
V. 50. LEVEL
Q19
2SC2785
D12
RD5.6EB2
D13
1SS119
D14
1SS119
Q20
2SC2785
IC13
μPD4066BC
4/5
IC19
RC4558DQ
2/2
Q21
2SC2785
D19
1SS119
IC13
μPD4066BC
3/5
IC20
RC4558DQ
1/2
Q22
2SC2785
SIDE-PIN-TILT
IC20
RC4558DQ
2/2
IC21
RC4558DQ
1/2
IC13
μPD4066BC
Q23
2SC2785
IC21
RC4558DQ
2/2
IC13
μPD4066BC
1/5
IC22
RC4558DQ
1/2
V. LIN GAIN
V. LIN. BALANCE
Q24
2SC2785
V. CENT
IC22
RC4558DQ
2/2
V. HEIGHT
IC15
μPD4066BC
2/3
IC14
μPD4066BC
2/3
IC17
RC4558DQ
2/2
V SAW
TP10
T/B PIN
TP7
H. CENTER LIN
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩

**DA board (DEFLECTION WAVEFORM)**

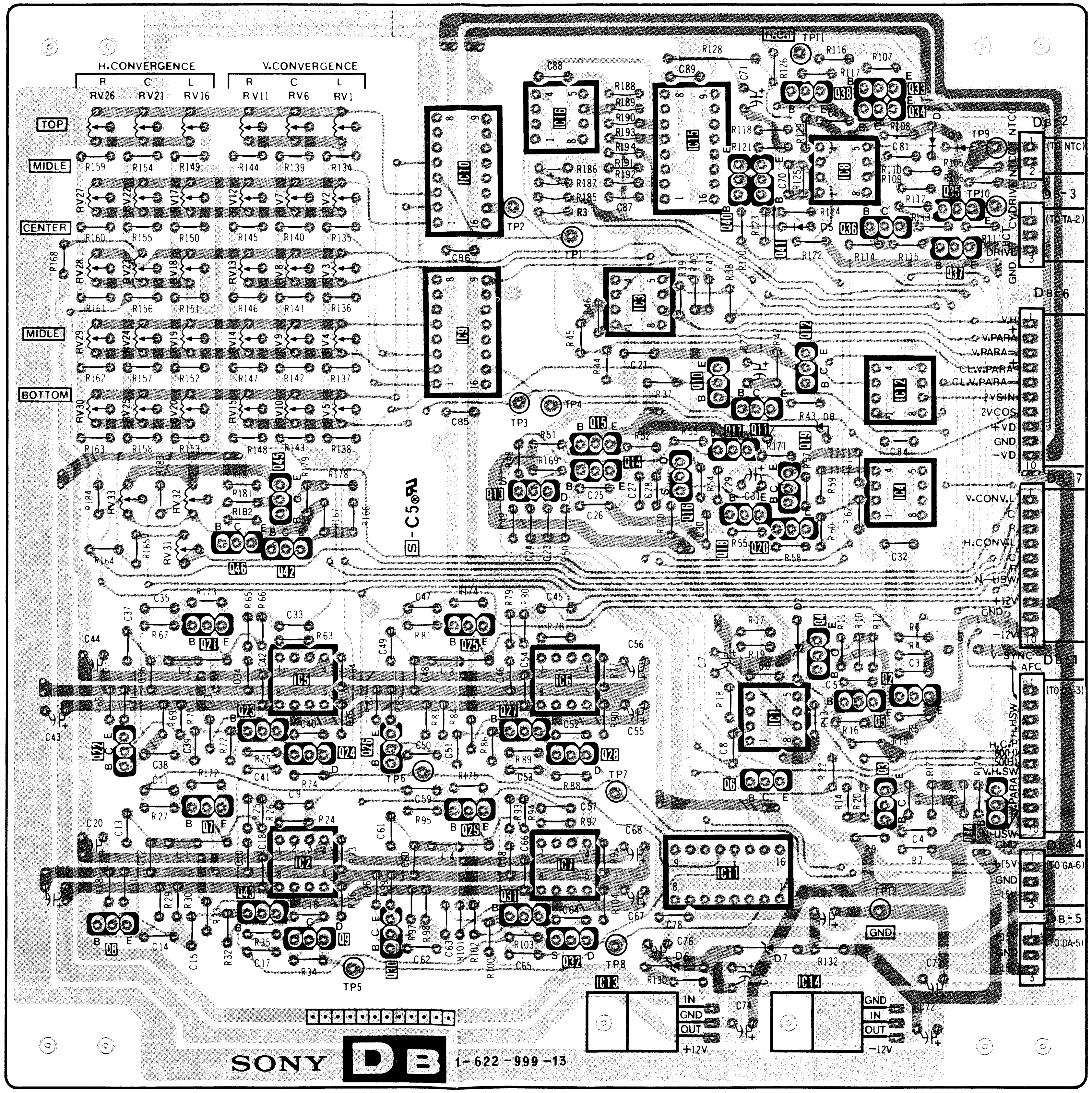
| IC | Q | D | TP ADJ |
|---|---|---|---|
|  | 18 | 4 |  |
| 7 |  |  |  |
|  |  | 11 |  |
| 8 18 17 | 17 |  |  |
|  |  |  | TP6 RV18 |
|  |  | 3 |  |
|  |  |  | RV12 RV11 |
|  |  | 13 |  |
|  |  |  | RV6 RV17<br>TP8 |
| 14 | 19 | 14 | TP5 |
| 5,6,9 | 4,20 |  |  |
|  |  | 12 |  |
|  | 21<br>5 | 19 | TP9<br>RV24 RV23 |
| 19 | 2 3 |  | TP3 RV7 |
| 25 15 |  |  |  |
|  |  |  | RV5 |
|  |  |  | RV19 |
| 10 |  |  |  |
|  |  |  | RV16 RV15 |
| 4<br>20 | 22<br>1 |  |  |
|  | 6 |  |  |
|  | 7 |  |  |
| 16 |  | 5 |  |
|  |  |  | RV4 |
| 13 | 8 |  |  |
| 24 | 12 |  | RV14 RV13<br>TP2 |
|  |  |  | RV28 |
| 2 23 |  |  |  |
|  |  |  | TP1 |
| 11,26 |  | 9 |  |
| 21<br>3 |  | 10<br>18 | TP4 |
|  | 9<br>23 |  | TP7 RV27 RV21 |
|  |  | 8<br>1<br>6 | RV1 RV20 |
|  | 13,14<br>15,16 | 7 | TP10 |
| 1 12 22 | 24 | 2 | TP11 |
|  |  |  | RV2 RV10 RV26 |
|  | 10 |  | RV3 RV22 RV25 |


1-623-514-16
(TO DB-1) DA.3
GND
N.U
V.P
V.H
50H
60H
H.C
H.H
V.S
TP6 SIDE PIN
TP8 V SYNC
TP5 H LIN
AFC.P
DA.4 (TO TA-7)
TP3 H DRV
DA.2
H.OSC
DA.5
DA.1
TP2 D AFC P
TP1 H BLK
D.A.P
H. BLK
H.S
(TO TA-3) DA.7
TP4 AFC P
TP7 T/B PIN
(TO TA-5) DA.6
TP10 V SAW
TP11 GND
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
IC19
IC20
IC21
IC22
IC23
IC24
IC25
GAIN
H.PHASE
T/B H.PHASE
T/B PHASE
AFC SW
PARALLEL
TRAPEZOID
H.BLK WIDTH
H.BLK PHASE
V.LEVEL 50HZ
V.LEVEL 60HZ
(TO DE-5) DA.8
H. WIDTH
V. HEIGHT
SIDE PIN
T/B PIN
SIDEPIN TILT
UNDER
NOR
V.CENT
V.LIN BALANCE
V.LIN GAIN
H.CENT
CENT
LIN
DA SONY

- : Conductor side pattern
- ▨: Component side pattern

## DB board (CONVERGENCE WAVEFORM)

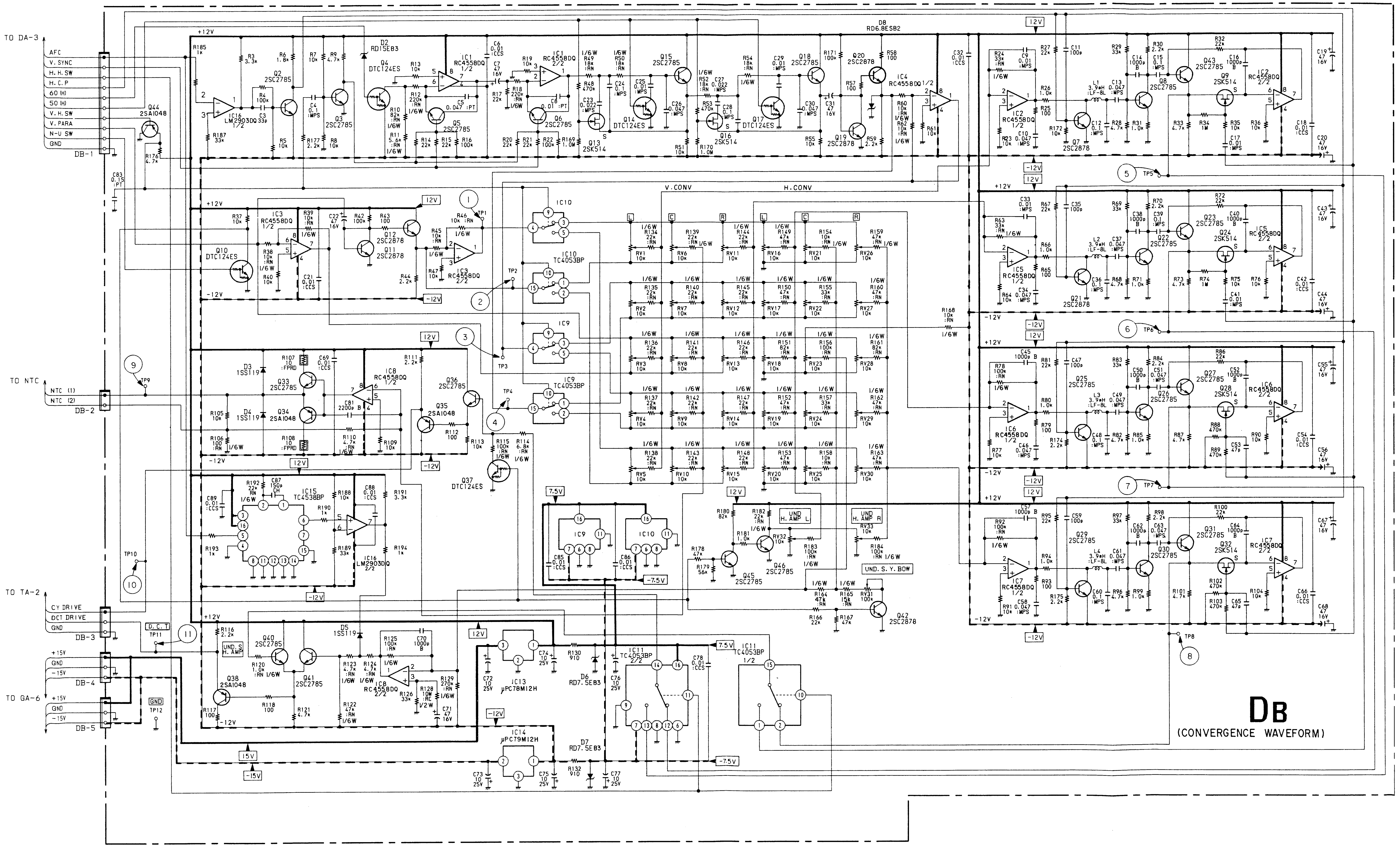
| IC | Q | D | TP | ADJ |
|---|---|---|---|---|
| | | | 11 | |
| | 38 33 | | | RV26 RV11 |
| 16 | 34 | | | RV21 RV6<br>RV16 RV1 |
| | | 4 3 | 9 | RV27 RV12 |
| 10 15 | 40 41 | | | RV22 RV7<br>RV17 RV2 |
| 8 | | | 10 2 | |
| | 35 36 37 | 5 | 1 | RV28 RV13<br>RV23 RV8<br>RV18 RV3 |
| 9 3 | | | | RV29 RV14<br>RV24 RV9<br>RV19 RV4 |
| | 10,12 | | | RV30 RV15<br>RV25 RV10 |
| | 11 | | 3 4 | RV20 RV5 |
| | 15 17 | 8 | | |
| | 14,16 | | | |
| | 13 19 | | | |
| 4 | 45 | | | RV33 RV32 |
| | 18 | | | |
| | 46 42 20 | | | RV31 |
| | 21 25 | | | |
| 5 6 | 4 | 2 | | |
| | 5 2 | | | |
| 1 | 23 27 | | | |
| | 22 24,26 28 | | | |
| | 6 | | 6 | |
| | 7 29 | | 7 | |
| | 3,44 | | | |
| 2 7 11 | | | | |
| | 43 31 | | 12 | |
| | 8 | | | |
| | 9,30,32 | | | |
| | | | 8 | |
| | | 7 | | |
| | | 6 | 5 | |
| 13,14 | | | | |


H.CONVERGENCE
V.CONVERGENCE
R C L
TOP
MIDLE
CENTER
BOTTOM
DB-2
(TO NTC)
NTC
DB-3
(TO TA-2)
V.CT DRIVE
H.CT DRIVE
DB-6
V.H
V.PARA
CL.V.PARA
2VSIN
2VCOS
+VD
GND
-VD
DB-7
V.CONV.L
H.CONV.L
N-USW
+12V
-12V
V.SYNC
AFC
DB-1
(TO DA-3)
H.HSW
H.C.
V.H.SW
V.PARA
N.USW
DB-4
(TO GA-6)
+15V
-15V
DB-5
(TO DA-5)
IN
OUT
GND
+12V
-12V
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP8
TP9
TP10
TP11
TP12
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
H.C.H
S-C5
SONY
DB
1-622-999-13

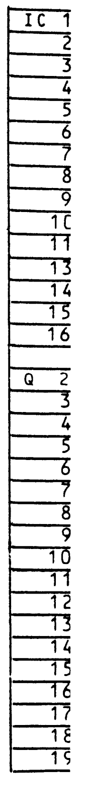
● ▨ : Conductor side pattern

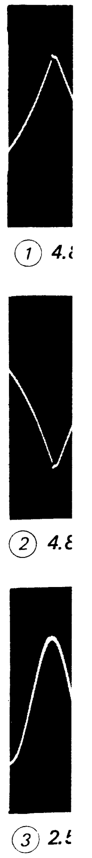
● ▨ : Component side pattern

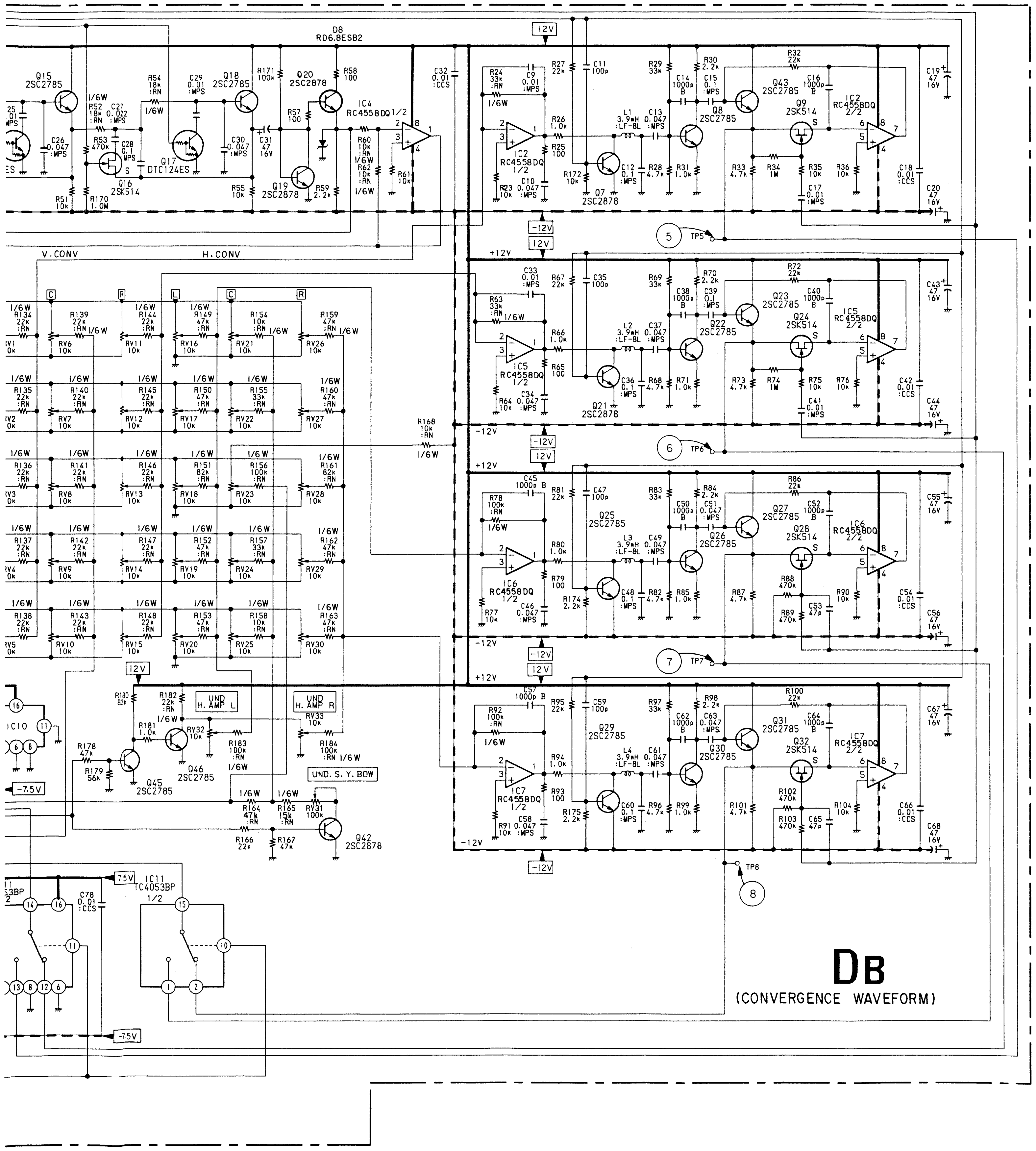
DB board (CONVERGENCE WAVEFORM)


TO DA-3
AFC
V. SYNC
H. H. SW
H. C. P
60 (H)
50 (H)
V. H. SW
V. PARA
N-U SW
GND
DB-1
TO NTC
NTC (1)
NTC (2)
DB-2
TO TA-2
CY DRIVE
DCT DRIVE
GND
DB-3
+15V
GND
-15V
DB-4
TO GA-6
DB-5
+12V
-12V
12V
7.5V
-7.5V
15V
-15V
IC1 RC4558DQ
IC2 RC4558DQ
IC3 RC4558DQ
IC4 RC4558DQ
IC5 RC4558DQ
IC6 RC4558DQ
IC7 RC4558DQ
IC8 RC4558DQ
IC9 TC4053BP
IC10 TC4053BP
IC11 TC4053BP
IC13 μPC78M12H
IC14 μPC79M12H
IC15 TC4538BP
IC16 LM2903DQ
V.CONV
H.CONV
L
C
R
UND. H. AMP L
UND. H. AMP R
UND. S. Y. BOW
UND. S H. AMP
D. C. T
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP8
TP9
TP10
TP11
TP12
DB
(CONVERGENCE WAVEFORM)

DB BOA





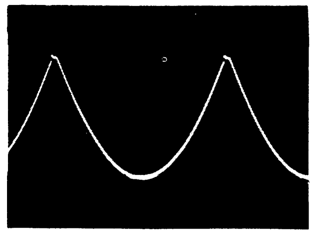

DB
RD6.8ESB2
Q15
2SC2785
Q16
2SK514
Q17
DTC124ES
Q18
2SC2785
Q19
2SC2878
Q20
2SC2878
IC4
RC4558DQ 1/2
IC2
RC4558DQ
IC3
RC4558DQ 2/2
Q7
2SC2878
Q8
2SC2785
Q43
2SC2785
Q9
2SK514
IC5
RC4558DQ 1/2
Q21
2SC2878
Q22
2SC2785
Q23
2SC2785
Q24
2SK514
IC5
RC4558DQ 2/2
IC6
RC4558DQ 1/2
Q25
2SC2785
Q26
2SC2785
Q27
2SC2785
Q28
2SK514
IC6
RC4558DQ 2/2
IC7
RC4558DQ 1/2
Q29
2SC2785
Q30
2SC2785
Q31
2SC2785
Q32
2SK514
IC7
RC4558DQ 2/2
12V
-12V
+12V
TP5
TP6
TP7
TP8
V.CONV
H.CONV
UND H.AMP L
UND H.AMP R
UND. S.Y. BOW
Q45
2SC2785
Q46
2SC2785
Q42
2SC2878
IC10
IC11
TC4053BP
1/2
-7.5V
7.5V

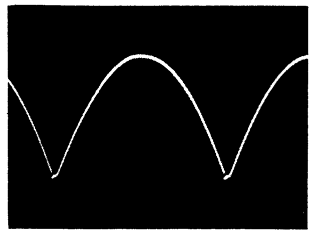
DB
(CONVERGENCE WAVEFORM)

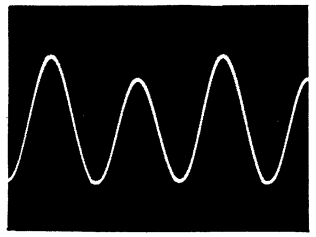
DB BOARD

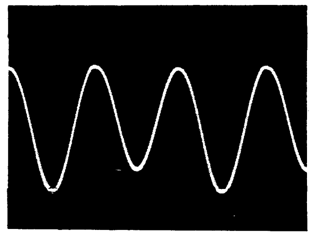
| | | |
|---|---|---|
| IC 1 | RC4558DQ | 2XV GEN |
| 2 | RC4558DQ | AMP & CLAMP |
| 3 | RC4558DQ | INVERTER |
| 4 | RC4558DQ | INVERTER |
| 5 | RC4558DQ | AMP & CLAMP |
| 6 | RC4558DQ | AMP & CLAMP |
| 7 | RC4558DQ | AMP & CLAMP |
| 8 | RC4558DQ | AMP |
| 9 | TC4053BP | |
| 10 | TC4053BP | |
| 11 | TC4053BPHB | 1/2HV. SW |
| 13 | uPC78M12H | +12V REG. |
| 14 | uPC79M12H | -12V REG. |
| 15 | HD14538BP | H.CONV CLAMP |
| 16 | LM2903DQ | INVERTER |
| | | |
| Q 2 | 2SC2785 | H. SW |
| 3 | 2SC2785 | 2XV. PULSE GEN |
| 4 | DTC124ES | 50/60 SW |
| 5 | 2SC2785 | 2XV SW |
| 6 | 2SC2785 | 2XV SW |
| 7 | 2SC2878 | H. SW |
| 8 | 2SC2785 | AMP |
| 9 | 2SK514 | H. CLAMP |
| 10 | DTC124ES | N/U SW |
| 11 | 2SC2878 | CLAMP |
| 12 | 2SC2878 | BUFFER |
| 13 | 2SK514 | 50/60 SW |
| 14 | DTC124ES | 50/60 SW |
| 15 | 2SC2785 | 50/60 SW |
| 16 | 2SK514 | 50/60 SW |
| 17 | DTC124ES | 50/60 SW |
| 18 | 2SC2785 | BUFFER |
| 19 | 2SC2878 | CLAMP |

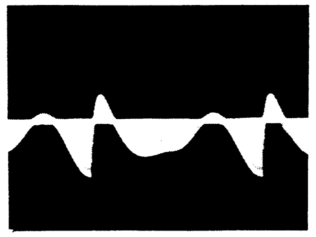
| | | |
|---|---|---|
| Q 20 | 2SC2878 | BUFFER |
| 21 | 2SC2878 | H. SW |
| 22 | 2SC2785 | AMP |
| 23 | 2SC2785 | H. CLAMP |
| 24 | 2SK514 | H. CLAMP |
| 25 | 2SC2785 | H. SW |
| 26 | 2SC2785 | AMP |
| 27 | 2SC2785 | H. CLAMP |
| 28 | 2SK514 | H. CLAMP |
| 29 | 2SC2785 | H. SW |
| 30 | 2SC2785 | AMP |
| 31 | 2SC2785 | H. CLAMP |
| 32 | 2SK514 | H. CLAMP |
| 33 | 2SC2785 | N.T.C AMP |
| 34 | 2SA1175 | N.T.C AMP |
| 35 | 2SA1175 | BUFFER |
| 36 | 2SC2785 | BUFFER |
| 37 | DTC124ES | N/U SW |
| 38 | 2SA1175 | BUFFER |
| 40 | 2SC2785 | ADDER |
| 41 | 2SC2785 | ADDER |
| 42 | 2SC2878 | N/U SW |
| 44 | 2SA1175 | BUFFER |
| 45 | 2SC2785 | UND.H.AMP |
| 46 | 2SC2785 | UND.H.AMP |
| | | |
| D 2 | RD15E-B3TN | LEVEL SHIFT |
| 3 | 1SS148 | PROTECTER |
| 4 | 1SS148 | PROTECTER |
| 5 | 1SS148 | DC STOPPER |
| 6 | RD7.5E-B3TN | +7.5V REG. |
| 7 | RD7.5E-B3TN | -7.5V REG. |
| 8 | RD6.8ESB2 | LIMITTER |

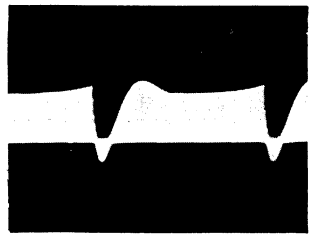

① 4.8Vp-p (V)

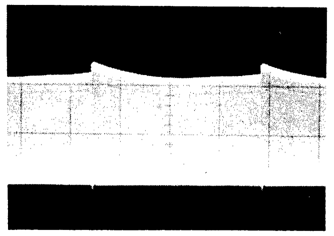

② 4.8Vp-p (V)

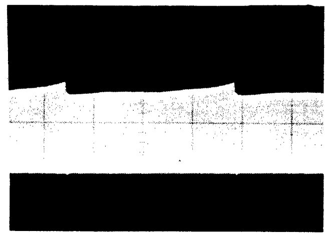

③ 2.5Vp-p (V)

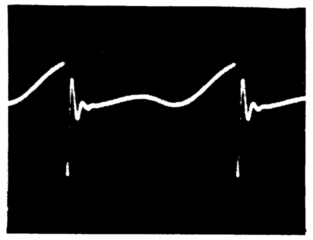

④ 2.5Vp-p (V)

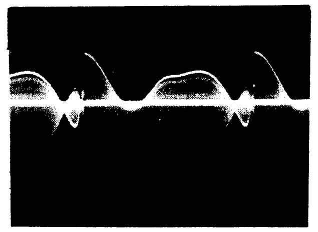

⑤ 0.3Vp-p (V)

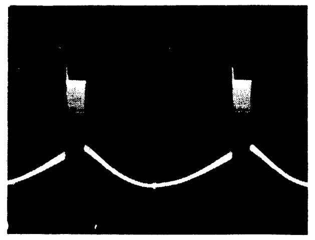

⑥ 0.3Vp-p (V)


⑦ 2.5Vp-p (V)


⑧ 1.8Vp-p (V)

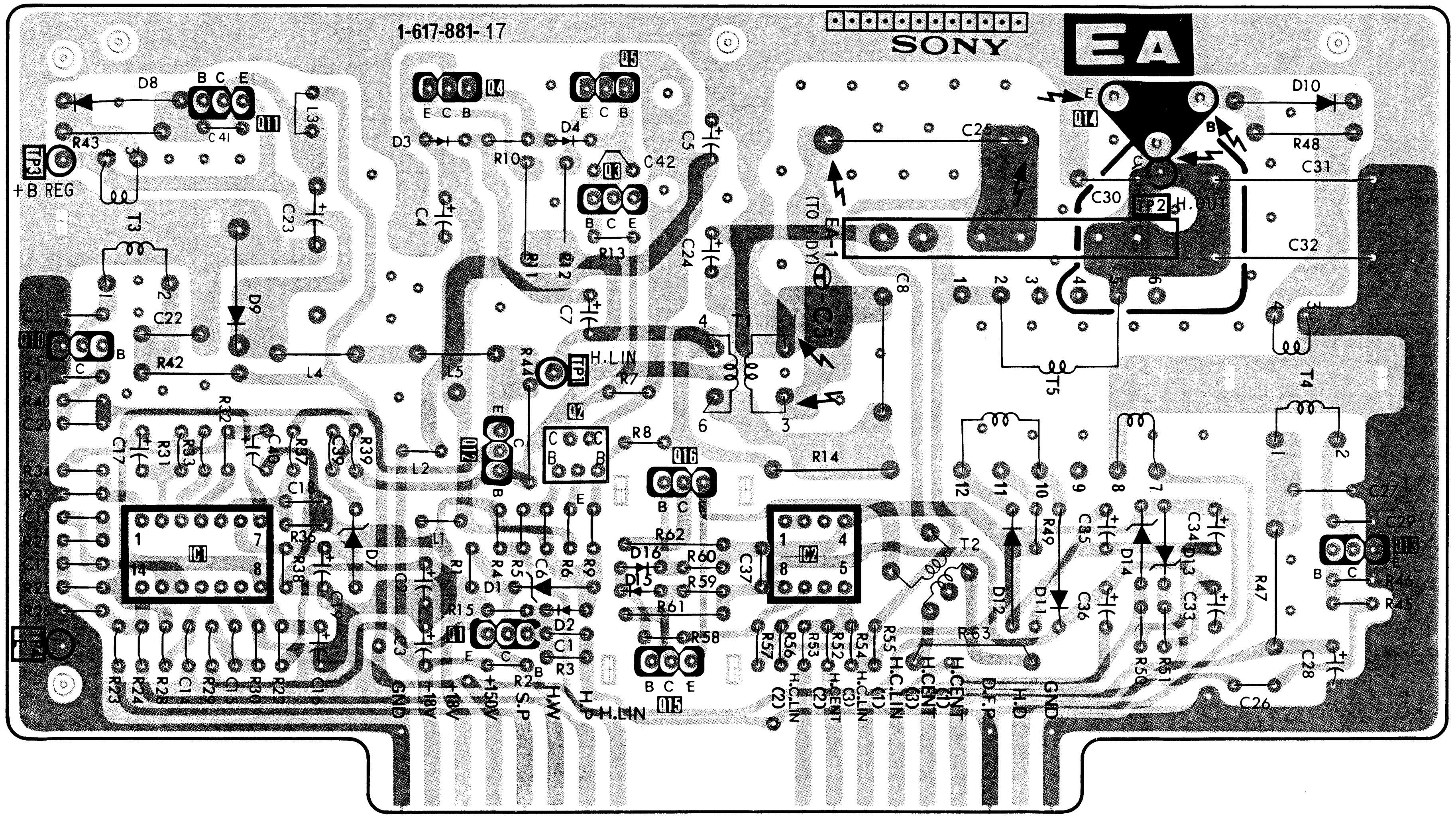

⑨ 2.2Vp-p (V)


⑩ 0.4Vp-p (V)


⑪ 5Vp-p (H)

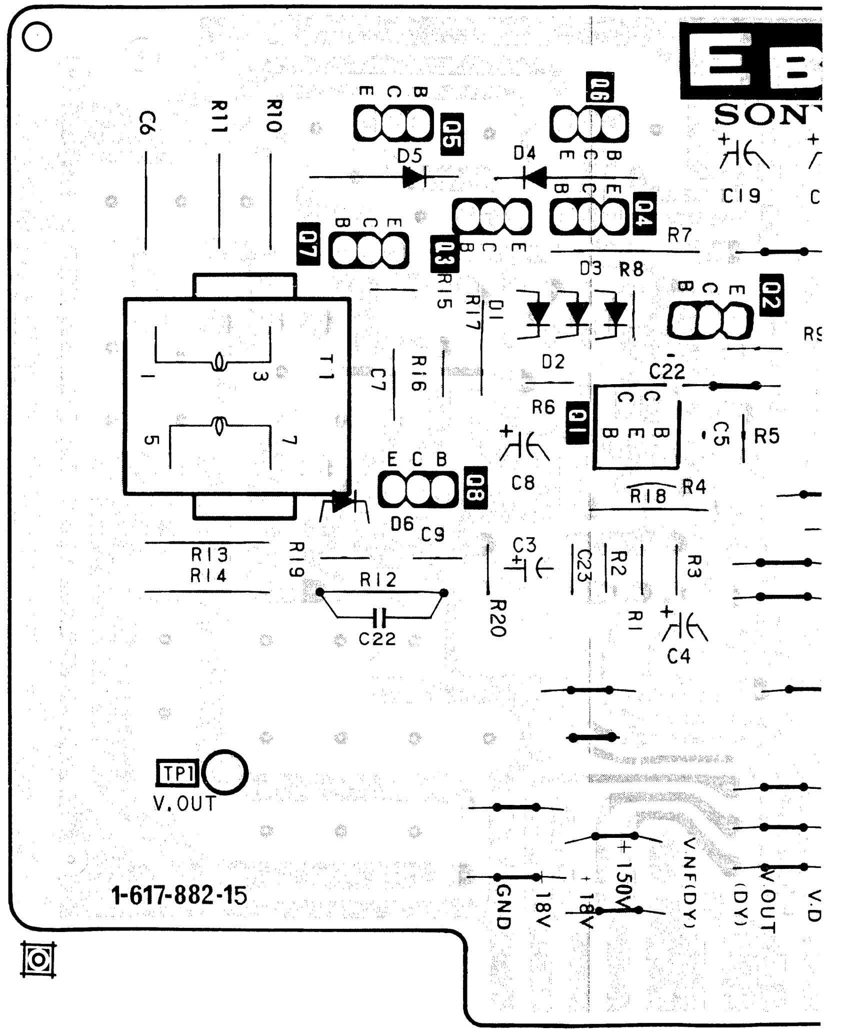
**EA board (H OUT)**

| | |
|---|---|
| IC | 1 2 |
| Q | 10 11 4 12 1 2 5 3 16 15 14 13 |
| D | 8 9 7 3 1 2 4 16 15 12 11 14 13 10 |
| TP | TP3 TP4 TP1 TP2 |

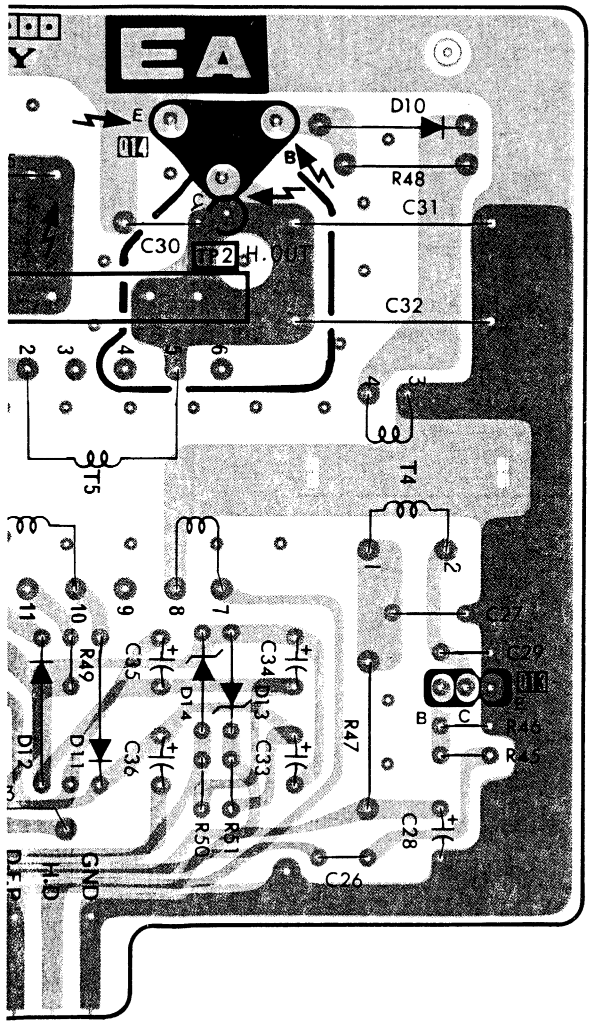

1-617-881- 17
SONY
EA
D8
Q11
L3
Q4
Q5
D3
D4
R10
C42
Q3
C5
C41
R43
TP3
+B REG
T3
C23
C4
C24
R13
D9
C22
R42
L4
L5
R44
TP1
H.LIN
R7
C7
C8
T5
T4
Q14
Q12
H. OUT
C30
C31
C32
D10
R48
R8
R14
Q2
Q16
IC1
IC2
L2
L1
T2
D1
D2
D15
D16
R62
R60
R59
R61
R58
Q15
Q1
Q13
R47
C28
C26
R63
D11
D12
D13
D14
GND
+18V
+150V
S.P
H.W
H.LIN
H.CENT
D.F.P
H.D

**EB board (V OUT)**

| | |
|---|---|
| Q | 7 5 8 3 6 4 1 2 |
| D | 6 5 4 1 2 3 |
| TP | TP1 |

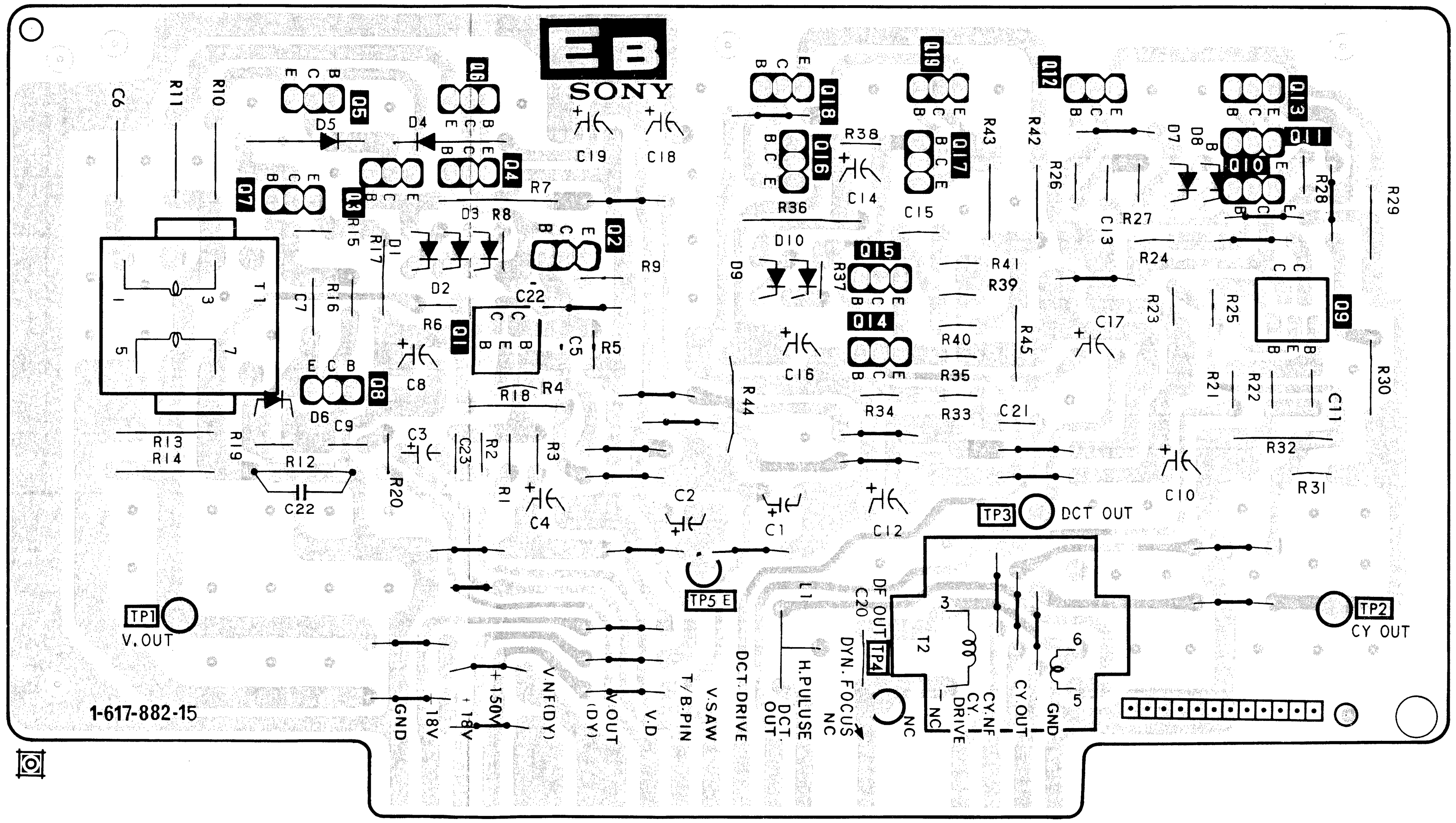

EB
SONY
1-617-882-15
C6
R11
R10
Q5
Q6
D5
D4
Q7
Q3
Q4
R7
D3
R8
Q2
T1
R15
R17
D1
D2
C7
R16
R6
Q1
C5
R5
C8
Q8
R18
R4
D6
C9
R13
R14
R19
R12
C22
C3
C23
R2
R3
R20
R1
C4
C19
TP1
V.OUT
GND
18V
+150V
+18V
V.NF(DY)
V.OUT (DY)
V.D

|  |  |
|---|---|
|  | 14 13 |
|  | 10 12 11 14 13 |
|  | TP 2 |


EA
D10
Q14
E
B
C
R48
C31
C30
TP2
H.OUT
C32
T5
T4
C35
R49
D14
D13
C34
C33
C36
D11
D12
R47
Q13
B
C
R46
R45
C29
C27
C28
C26
R50
R51
GND
H.D

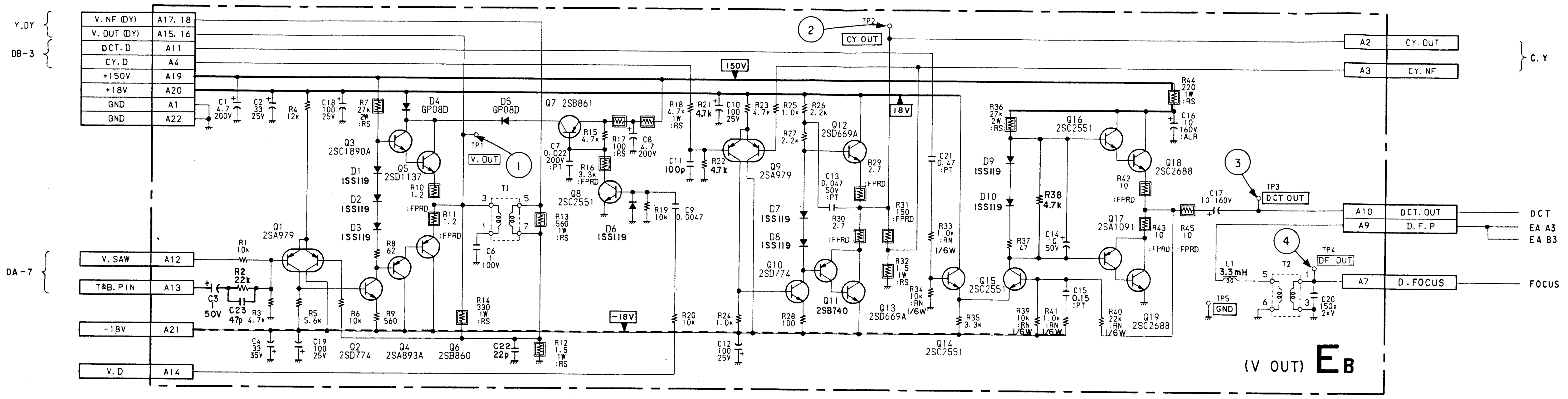
**EB board (V OUT)**

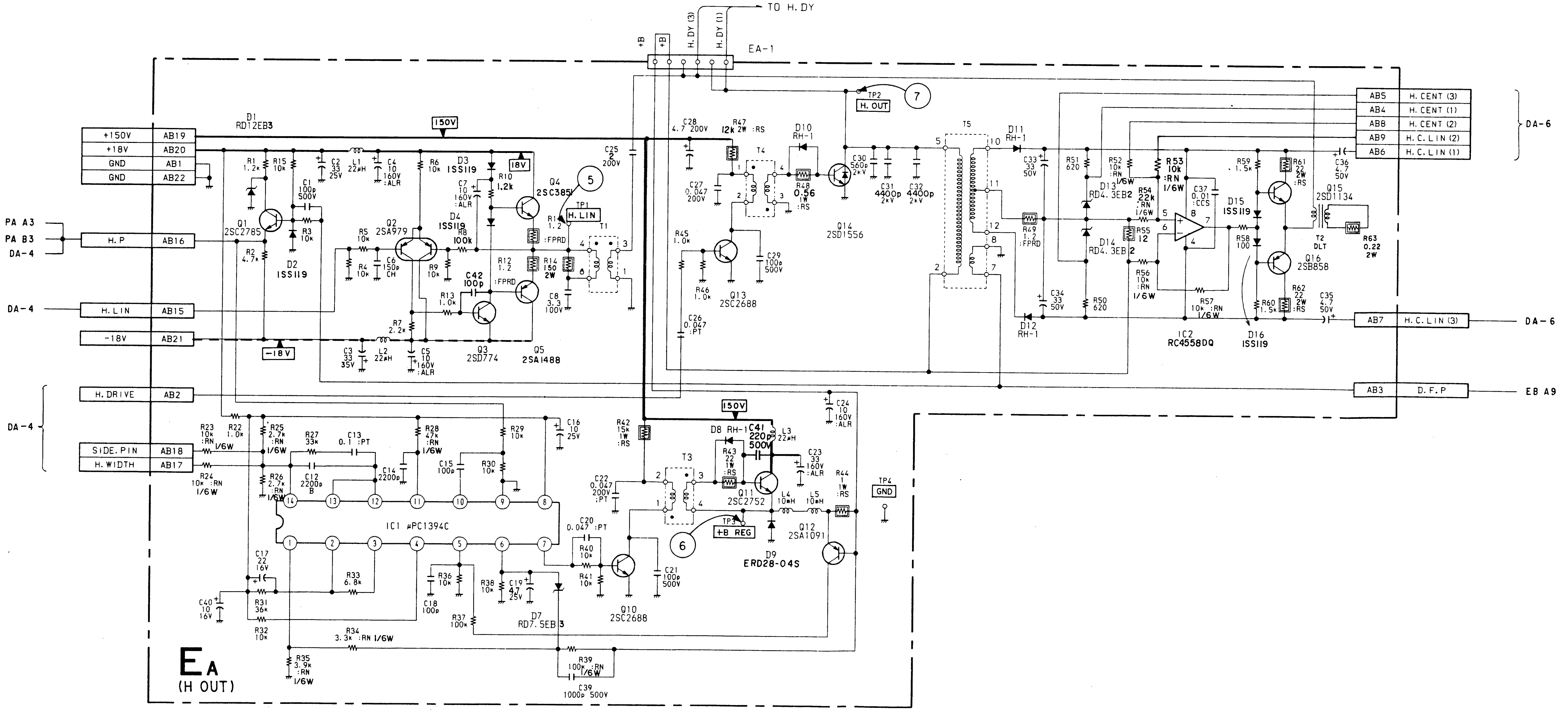
|  |  |
|---|---|
| Q | 7 5 8 3 6 4 1 2 18 16 15 14 19 17 12 13 11 10 9 |
| D | 6 5 4 1 2 3 9 10 7 8 |
| TP | TP1 TP5 TP4 TP3 TP2 |


EB
SONY
1-617-882-15
C6
R11
R10
Q5
D5
Q6
D4
Q4
Q7
Q3
R15
R17
D1
D3
R8
R7
Q2
R9
D2
C22
T1
C7
R16
Q1
R6
C8
C5
R5
R18
R4
Q8
E C B
D6
C9
R13
R14
R19
R12
C22
C3
C23
R2
R3
R1
R20
C4
C19
C18
Q18
Q16
R38
C14
R36
Q19
Q17
C15
D10
D9
Q15
R37
Q14
C16
R44
R34
C2
C1
C12
Q12
R43
R42
R41
R39
R40
R35
R33
R45
C21
C17
R26
R27
C13
R24
R23
D7
D8
Q13
Q11
Q10
R28
R29
R25
Q9
R21
R22
C11
R30
R32
R31
C10
TP3
DCT OUT
TP2
CY OUT
TP1
V.OUT
TP5 E
TP4
T2
L1
C20
GND
18V
18V
+150V
V.NF(DY)
V OUT (DY)
V.D
T/B.PIN
V.SAW
DCT.DRIVE
DCT. OUT
H.PULUSE
DYN.FOCUS NC
DF OUT
NC
NC
CY.NF
CY. DRIVE
CY.OUT
GND

- ░ : Conductor side pattern
- ▒ : Component side pattern

**EA board (H OUT)**
**EB board (V OUT)**


Y.DY
DB-3
V.NF (DY) A17, 18
V.OUT (DY) A15, 16
DCT.D A11
CY.D A4
+150V A19
+18V A20
GND A1
GND A22
DA-7
V.SAW A12
T&B.PIN A13
-18V A21
V.D A14
Q1 2SA979
Q2 2SD774
Q3 2SC1890A
Q4 2SA893A
Q5 2SD1137
Q6 2SB860
Q7 2SB861
Q8 2SC2551
Q9 2SA979
Q10 2SD774
Q11 2SB740
Q12 2SD669A
Q13 2SD669A
Q14 2SC2551
Q15 2SC2551
Q16 2SC2551
Q17 2SA1091
Q18 2SC2688
Q19 2SC2688
D1 1SS119
D2 1SS119
D3 1SS119
D4 GP08D
D5 GP08D
D6 1SS119
D7 1SS119
D8 1SS119
D9 1SS119
D10 1SS119
TP1 V.OUT
TP2 CY OUT
TP3 DCT OUT
TP4 DF OUT
TP5 GND
T1
T2
L1 3.3mH
150V
18V
-18V
A2 CY.OUT
A3 CY.NF
C.Y
A10 DCT.OUT
A9 D.F.P
A7 D.FOCUS
DCT
EA A3
EA B3
FOCUS
(V OUT) EB


TO H.DY
+B
+B
H.DY (3)
H.DY (1)
EA-1
+150V AB19
+18V AB20
GND AB1
GND AB22
PA A3
PA B3
DA-4
H.P AB16
DA-4
H.LIN AB15
-18V AB21
H.DRIVE AB2
DA-4
SIDE.PIN AB18
H.WIDTH AB17
D1 RD12EB3
Q1 2SC2785
D2 1SS119
Q2 2SA979
D3 1SS119
D4 1SS119
Q3 2SD774
Q4 2SC3851
Q5 2SA1488
TP1 H.LIN
T1
150V
18V
-18V
TP2 H.OUT
T4
T5
D10 RH-1
D11 RH-1
D12 RH-1
Q13 2SC2688
Q14 2SD1556
D13 RD4.3EB2
D14 RD4.3EB2
IC2 RC4558DQ
D15 1SS119
D16 1SS119
Q15 2SD1134
Q16 2SB858
T2 DLT
AB5 H.CENT (3)
AB4 H.CENT (1)
AB8 H.CENT (2)
AB9 H.C.LIN (2)
AB6 H.C.LIN (1)
DA-6
AB7 H.C.LIN (3)
DA-6
AB3 D.F.P
EB A9
IC1 μPC1394C
D7 RD7.5EB3
Q10 2SC2688
T3
D8 RH-1
Q11 2SC2752
TP3 +B REG
D9 ERD28-04S
Q12 2SA1091
TP4 GND
EA (H OUT)

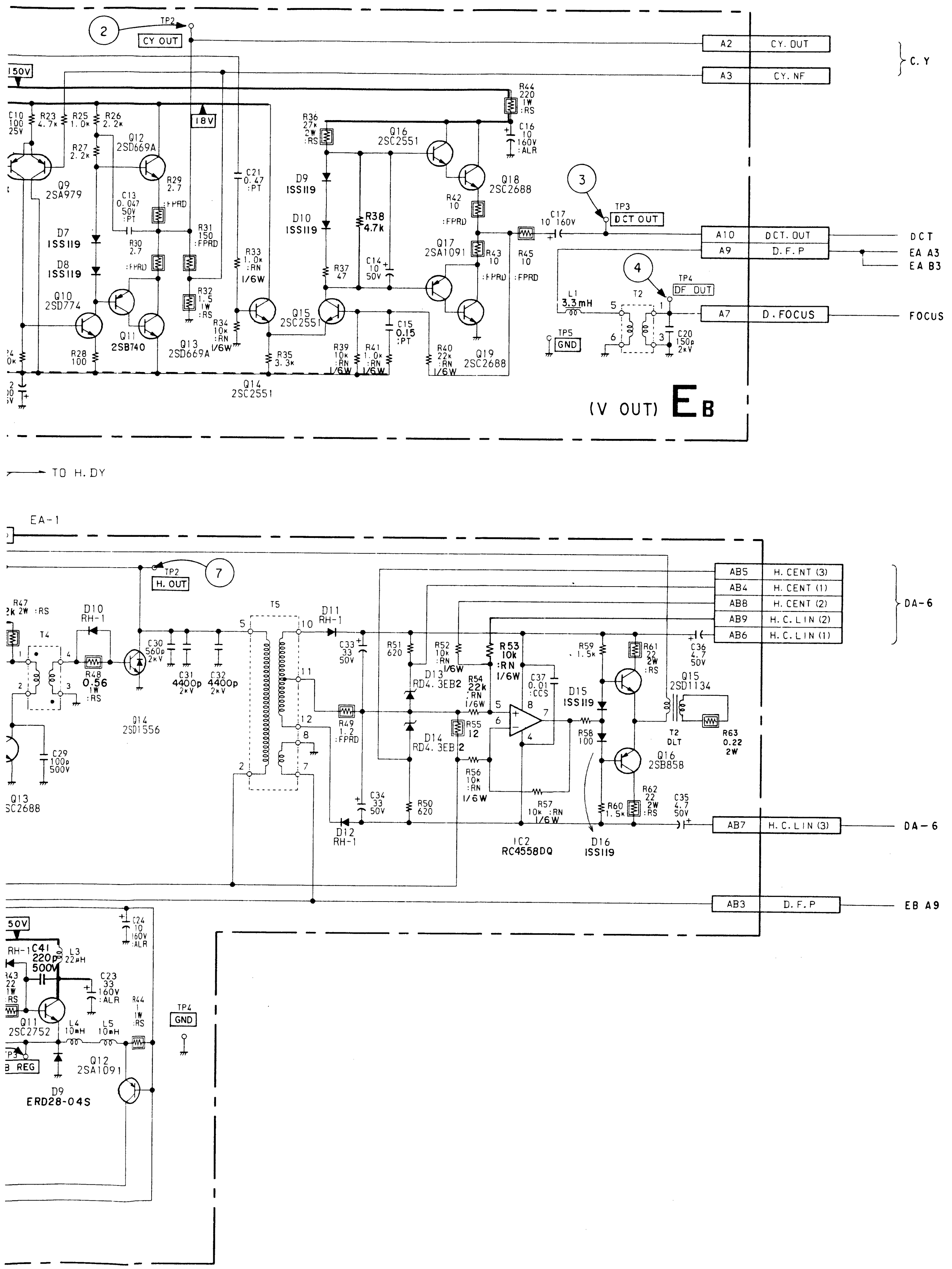
EA BO

IC1
2

Q1
2
3
4
5
10
11
12
13
14
15
16

D1
2
3
4
7
8
9
10
11
12
13
14
15
16

① 80
② 20
③ 100

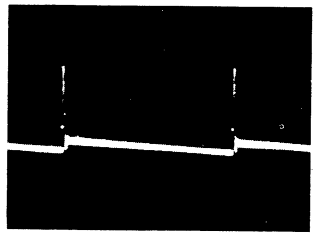

TP2
CY OUT
A2 CY. OUT
A3 CY. NF
C. Y
150V
18V
R23 4.7k
R25 1.0k
R26 2.2k
R27 2.2k
Q12 2SD669A
R29 2.7
C13 0.047 50V :PT
Q9 2SA979
D7 1SS119
D8 1SS119
R30 2.7
R31 150 :FPRD
R32 1.5 1W :RS
Q10 2SD774
Q11 2SB740
Q13 2SD669A
R28 100
C21 0.47 :PT
R33 1.0k :RN 1/6W
R34 10k :RN 1/6W
Q14 2SC2551
R35 3.3k
R36 27k 2W :RS
D9 1SS119
D10 1SS119
R38 4.7k
R37 47
C14 10 50V
Q15 2SC2551
C15 0.15 :PT
R39 10k :RN 1/6W
R41 1.0k :RN 1/6W
Q16 2SC2551
R44 220 1W :RS
C16 10 160V :ALR
Q18 2SC2688
R42 10 :FPRD
Q17 2SA1091
R43 10 :FPRD
R45 10 :FPRD
R40 22k :RN 1/6W
Q19 2SC2688
C17 10 160V
TP3
DCT OUT
A10 DCT. OUT
A9 D.F.P
DCT
EA A3
EA B3
TP4
DF OUT
L1 3.3mH
T2
C20 150p 2kV
TP5
GND
A7 D.FOCUS
FOCUS
(V OUT) EB
TO H. DY
EA-1
TP2
H. OUT
R47 2k 2W :RS
D10 RH-1
T4
R48 0.56 1W :RS
C30 560p 2kV
C31 4400p 2kV
C32 4400p 2kV
Q14 2SD1556
C29 100p 500V
Q13 2SC2688
T5
D11 RH-1
C33 33 50V
R49 1.2 :FPRD
C34 33 50V
D12 RH-1
R51 620
D13 RD4.3EB2
D14 RD4.3EB2
R50 620
R52 10k :RN 1/6W
R53 10k :RN 1/6W
R54 22k :RN 1/6W
R55 12
R56 10k :RN 1/6W
C37 0.01 :CCS
R57 10k :RN 1/6W
IC2 RC4558DQ
R59 1.5k
D15 1SS119
R58 100
D16 1SS119
R60 1.5k
R61 22 2W :RS
Q15 2SD1134
Q16 2SB858
R62 22 2W :RS
T2 DLT
R63 0.22 2W
C36 4.7 50V
C35 4.7 50V
AB5 H. CENT (3)
AB4 H. CENT (1)
AB8 H. CENT (2)
AB9 H. C. LIN (2)
AB6 H. C. LIN (1)
DA-6
AB7 H. C. LIN (3)
DA-6
AB3 D. F. P
EB A9
50V
C24 10 160V :ALR
RH-1
C41 220p 500V
L3 22µH
R43 22 1W :RS
C23 33 160V :ALR
R44 1 1W :RS
Q11 2SC2752
L4 10µH
L5 10µH
Q12 2SA1091
TP4
GND
B REG
D9 ERD28-04S

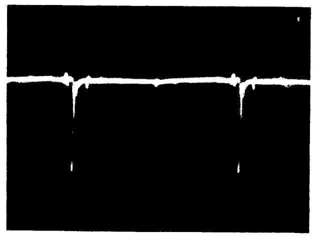
EA BOARD

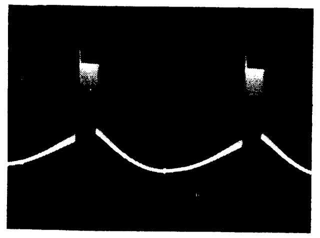
| | | |
|---|---|---|
| IC1 | uPC1394C | P.W.M CONTROL |
| 2 | RC4558DQ | H.CENT |
| | | |
| | | |
| Q1 | 2SC2785 | H.PULSE BUFFER |
| 2 | 2SA979 | H.LIN AMP |
| 3 | 2SD774 | H.LIN AMP |
| 4 | 2SC1173 | H.LIN AMP OUT |
| 5 | 2SA473 | H.LIN AMP OUT |
| 10 | 2SC2688 | P.W.M DRIVE |
| 11 | 2SC2752 | P.W.M OUT |
| 12 | 2SA1091 | O.C.P |
| 13 | 2SC2688 | H.DRIVE |
| 14 | 2SD1556 | H.OUT |
| 15 | 2SD1134 | H.CENT |
| 16 | 2SB858 | H.CENT |
| | | |
| | | |
| D1 | RD12E-B | CLIPPER |
| 2 | 1SS148 | PROTECTOR |
| 3 | 1SS148 | BIAS |
| 4 | 1SS148 | BIAS |
| 7 | RD7.5E-B | PROTECTOR |
| 8 | RH-1 | P.W.M DRIVE |
| 9 | ERD28-04S | P.W.M SW |
| 10 | RH-1 | H.DRIVE |
| 11 | RH-1 | H.P.RECT. |
| 12 | RH-1 | H.P.RECT. |
| 13 | RD4.3E-B | +4.3V REG |
| 14 | RD4.3E-B | -4.3V REG |
| 15 | 1SS148 | BIAS |
| 16 | 1SS148 | BIAS |
| | | |
| | | |

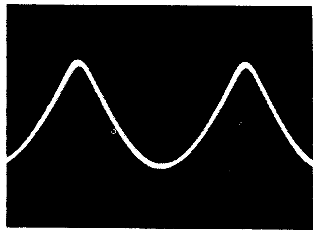
EB BOARD

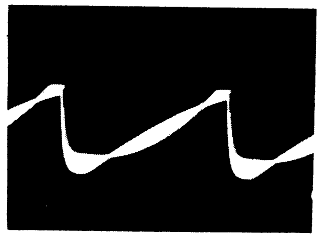
| | | |
|---|---|---|
| Q1 | 2SA979 | V.AMP |
| 2 | 2SD774 | V.AMP |
| 3 | 2SC1890A | V.AMP |
| 4 | 2SA893A | V.AMP |
| 5 | 2SD1137 | V.AMP OUT |
| 6 | 2SB860 | V.AMP OUT |
| 7 | 2SB861 | V.RETRACE SW |
| 8 | 2SC25510 | V.RETRACE SW |
| 9 | 2SA979 | CY.AMP |
| 10 | 2SD774 | CY.AMP |
| 11 | 2SB740 | CY.AMP |
| 12 | 2SD669A | CY.AMP OUT |
| 13 | 2SD669A | CY.AMP OUT |
| 14 | 2SC25510 | D.C.T AMP |
| 15 | 2SC25510 | D.C.T AMP |
| 16 | 2SC25510 | D.C.T AMP |
| 17 | 2SA1091 | D.C.T AMP |
| 18 | 2SC2688 | D.C.T AMP OUT |
| 19 | 2SC2688 | D.C.T AMP OUT |
| | | |
| | | |
| D1 | 1SS148 | BIAS |
| 2 | 1SS148 | BIAS |
| 3 | 1SS148 | BIAS |
| 4 | GP08D | DC.STOPPER |
| 5 | GP08D | DC.STOPPER |
| 6 | 1SS148 | PROTECTOR |
| 7 | 1SS148 | BIAS |
| 8 | 1SS148 | BIAS |
| 9 | 1SS148 | BIAS |
| 10 | 1SS148 | BIAS |

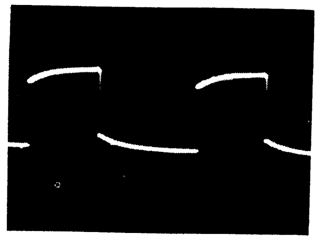

① 80Vp-p (V)

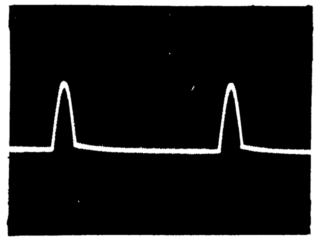

② 20Vp-p (H)


③ 100Vp-p (H)

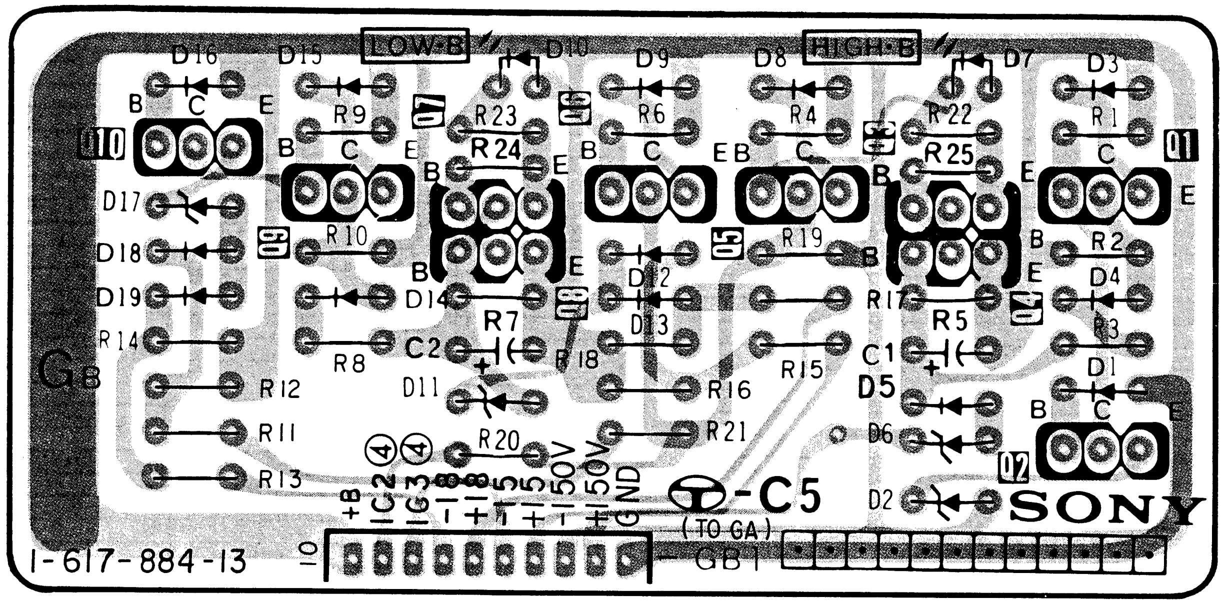

④ 210Vp-p (H)


⑤ 34Vp-p (H)


⑥ 160Vp-p (H)

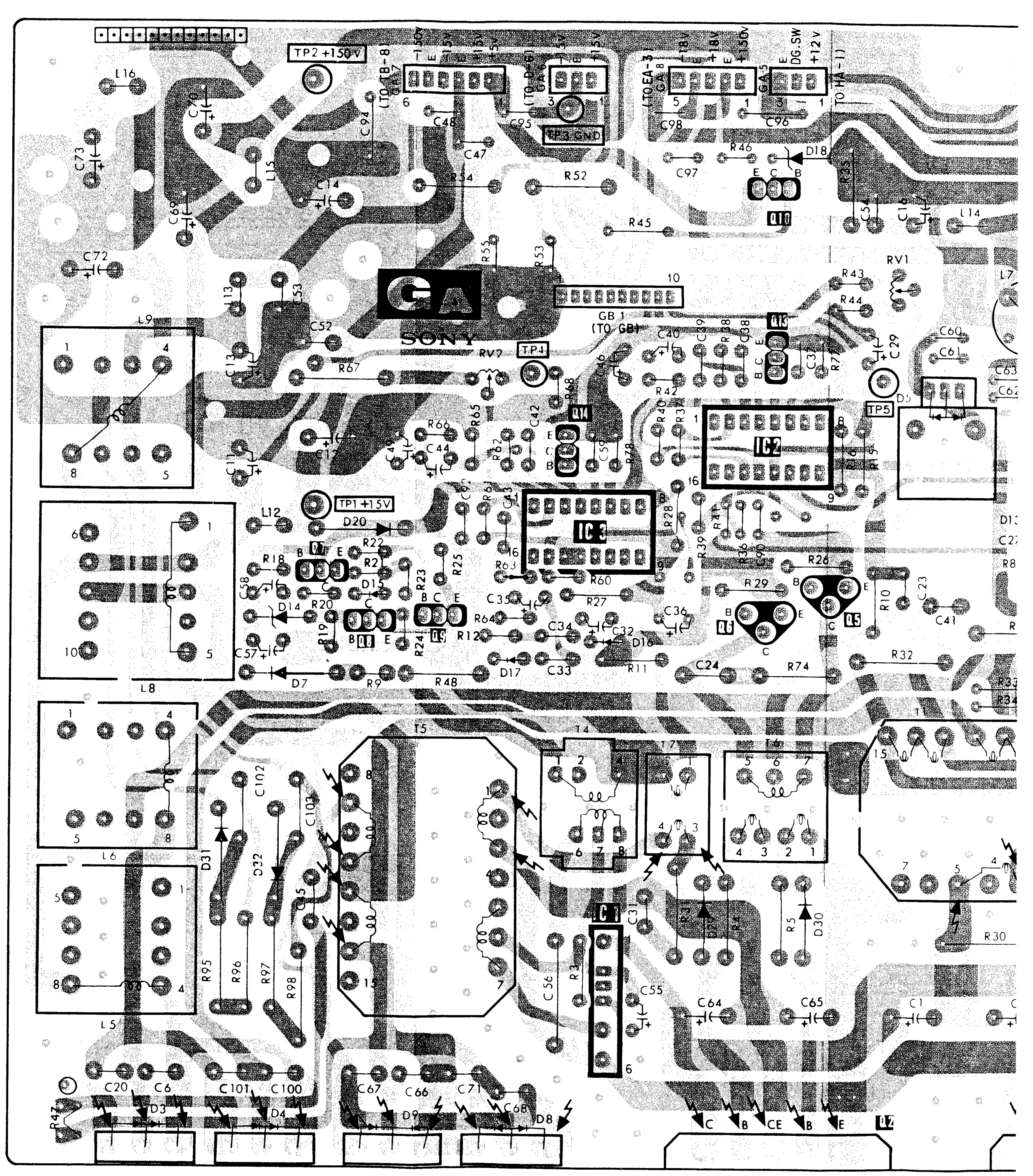

⑦ 650Vp-p (H)

## GB board (OVER VOLTAGE PROTECTOR)


LOW-B
HIGH-B
D16
D15
D10
D9
D8
D7
D3
Q10
Q7
Q6
Q5
Q4
Q3
Q1
Q2
Q9
Q8
R9
R23
R24
R6
R4
R22
R25
R1
R10
R19
R2
D17
D18
D19
D14
D12
D13
D4
R14
R7
C2
R8
R18
R17
R5
C1
R15
R16
R3
D1
D11
D5
D6
D2
R12
R11
R13
R20
R21
+B
IC2
IC3
GND
+50V
-50V
C5
(TO GA)
GB1
SONY
1-617-884-13
10

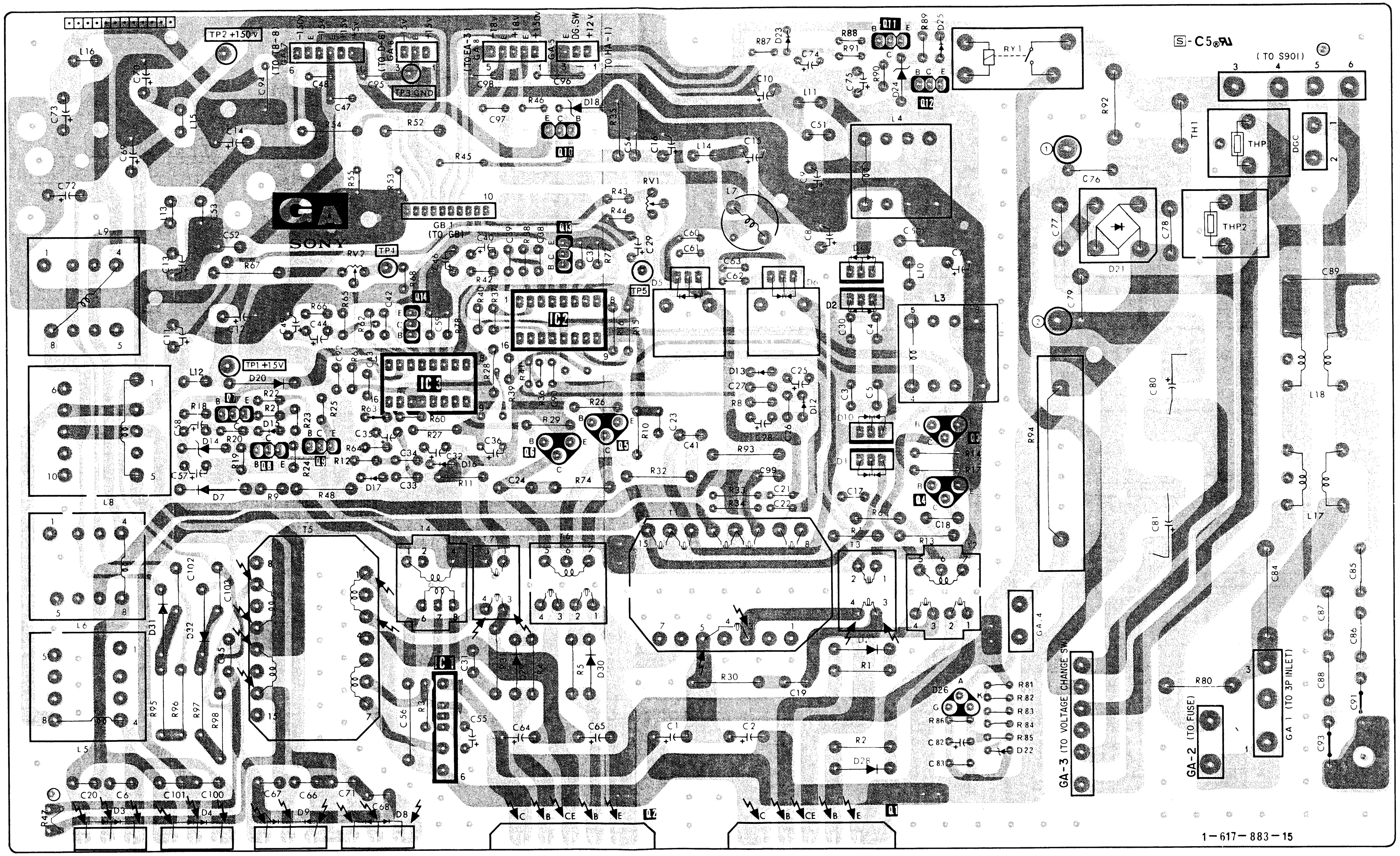
## GA board (AC RECT, DC REG)

| IC | Q | D | ADJ·TP |
|---|---|---|---|
| | | 23 25 | |
| | 11 | | TP2 |
| | | 24 | TP3 |
| | 12 | | |
| | | 18 | |
| | 10 | | |
| | | | RV1 |
| | | 21 | |
| | 13 | 11 | RV2 TP4<br>TP5 |
| | | 5 6 | |
| | | 2 | |
| 2 | 14 | | |
| | | | TP1 |
| 3 | | 20 13 | |
| | 7 | 12 | |
| | 5 | 15 | |
| | 9 6 3 | 10 | |
| | 8 | 14 | |
| | | 16 | |
| | | 1 | |
| | | 17 | |
| | 4 | 7 | |
| | | 31,32 | |
| | | 29 30 27 | |
| | | 26 | |
| | | 22 | |
| | | 28 | |
| | | 3 4 | |
| | 2 1 | 9 8 | |


TP2 +150V
TP3 GND
TP1 +15V
TP4
TP5
L16
C73
C4
C94
C48
C95
C47
C98
C96
C97
R46
D18
Q10
R54
R52
R45
C14
C69
C72
L13
C53
C52
R67
GA
SONY
RV7
GB1 (TO GB)
10
R43
RV1
R44
C40
Q14
C60
C61
L9
C13
C11
C12
R66
R65
C42
C44
R48
R42
IC2
L12
D20
IC3
Q7
R18
R22
R2
D15
R23
R25
R60
R29
R26
Q6
Q5
D14
R20
R19
Q8
Q9
R24
R12
R64
C34
C32
C36
R10
C23
C41
C57
D7
R9
R48
D17
C33
R11
C24
R74
R32
L8
T5
T4
C102
C103
D31
D32
R95
R96
R97
R98
L6
L5
IC1
C56
C55
C64
C65
C1
R30
D30
R5
C20
C6
C101
C100
C67
C66
C71
C68
D3
D4
D9
D8
R47
C B CE B E
Q2

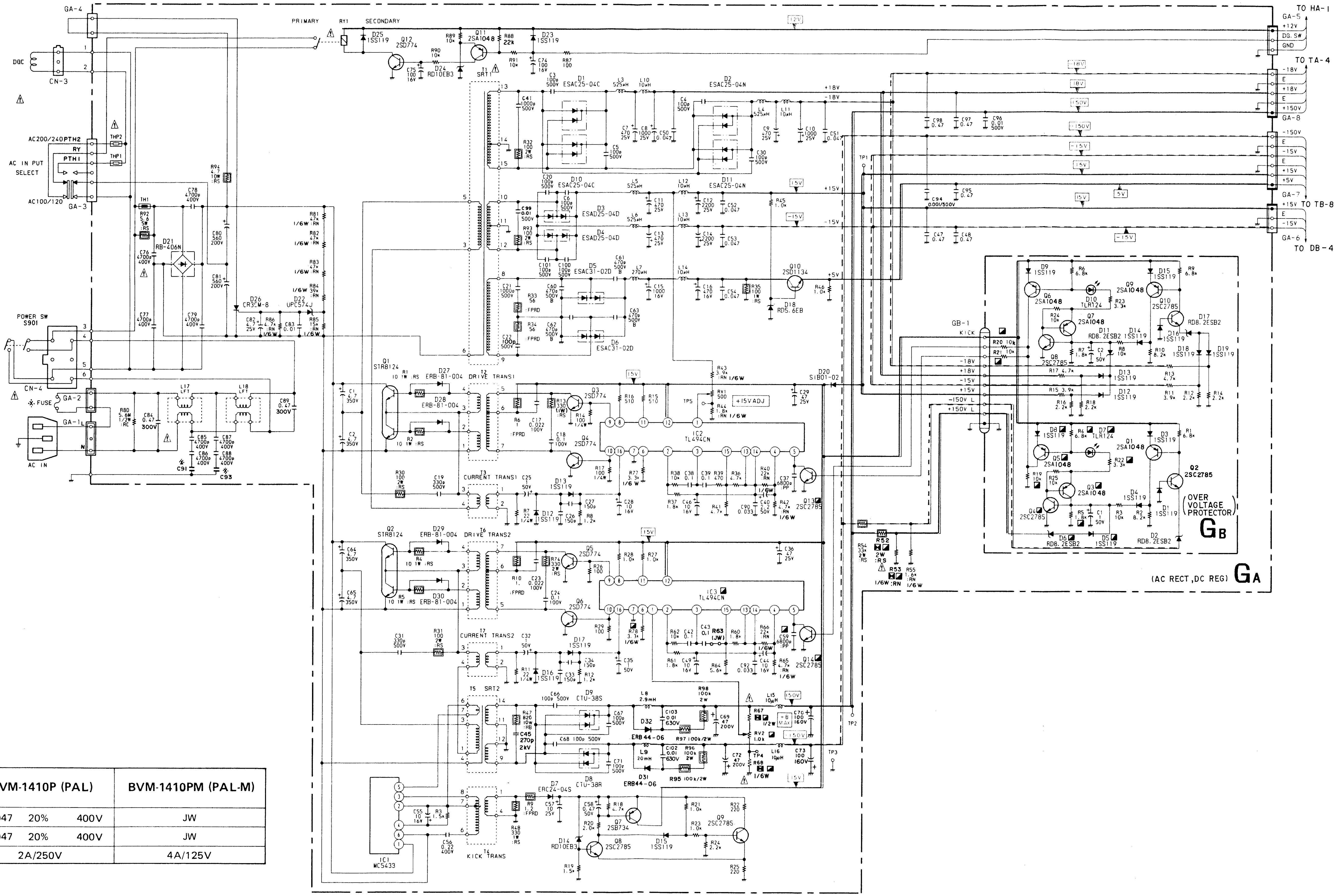
. board (AC RECT, DC REG)

| IC | Q | D | ADJ·TP |
|---|---|---|---|
| | | 23 25 | |
| | 11 | | TP2 |
| | | 24 | TP3 |
| | 12 | | |
| | | 18 | |
| | 10 | | |
| | | | RV1 |
| | | 21 | |
| | | 11 | RV2 TP4 |
| | 13 | | TP5 |
| | | 5 6 | |
| | | 2 | |
| 2 | 14 | | |
| | | | TP1 |
| 3 | | | |
| | | 20 13 | |
| | 7 | 12 | |
| | 5 | 15 | |
| | 9 6 3 | 10 | |
| | 8 | 14 | |
| | | 16 | |
| | | 1 | |
| | | 17 | |
| | 4 | 7 | |
| | | 31,32 | |
| | | 29 30 27 | |
| | | 26 | |
| | | 22 | |
| | | 28 | |
| | | 3 4 | |
| | 2 1 | 9 8 | |


TP2 +150V
TP3 GND
TP1 +15V
TP4
TP5
GA
SONY
GB 1 (TO GB)
IC1
IC2
IC3
RV1
RV2
RY1
THP1
THP2
TH1
DGC
S-C5
(TO S901)
GA-3 (TO VOLTAGE CHANGE SW)
GA-2 (TO FUSE)
GA 1 (TO 3P INLET)
GA 4
T1
T3
T4
T5
T6
T7
L3
L4
L5
L6
L7
L8
L9
L17
L18
D21
Q1
Q2
1-617-883-15

● ▨ : Conductor side pattern
● ▨ : Component side pattern

**GA board (AC RECT, DC REG)**
**GB board (OVER VOLTAGE PROTECTOR)**


GA-4
DGC
CN-3
AC200/240 PTH2
RY
PTH1
AC IN PUT SELECT
AC100/120
GA-3
THP2
THP1
TH1
D21 RB-406N
POWER SW S901
CN-4
FUSE
GA-2
GA-1
AC IN
C91
C93
PRIMARY
RY1
SECONDARY
D25 1SS119
Q12 2SD774
Q11 2SA1048
D23 1SS119
D24 RD10EB3
T1 SRT1
D1 ESAC25-04C
D2 ESAC25-04N
D10 ESAC25-04C
D11 ESAC25-04N
D3 ESAD25-04D
D4 ESAD25-04D
D5 ESAC31-02D
D6 ESAC31-02D
Q10 2SD1134
D18 RD5.6EB
D26 CR3CM-8
D22 UPC574J
+18V
-18V
+15V
-15V
+5V
+150V
-150V
TO HA-1
GA-5
+12V
DG.SW
GND
TO TA-4
GA-8
GA-7
TO TB-8
GA-6
TO DB-4
TP1
Q1 STR8124
D27 ERB-81-004
D28 ERB-81-004
T2 DRIVE TRANS1
Q3 2SD774
Q4 2SD774
IC2 TL494CN
RV1 500
+15V ADJ
D20 S1B01-02
T3 CURRENT TRANS1
D13 1SS119
D12 1SS119
Q13 2SC2785
Q2 STR8124
D29 ERB-81-004
D30 ERB-81-004
T6 DRIVE TRANS2
Q5 2SD774
Q6 2SD774
IC3 TL494CN
T7 CURRENT TRANS2
D17 1SS119
D16 1SS119
Q14 2SC2785
R52
R53
R54
R55
T5 SRT2
D9 CTU-38S
D32 ERB44-06
D31 ERB44-06
+B MAX
RV2
TP2
TP3
TP4
D8 CTU-38R
D7 ERC24-04S
IC1 MC5433
T4 KICK TRANS
Q7 2SB734
Q8 2SC2785
Q9 2SC2785
D14 RD10EB3
D15 1SS119
GB-1
KICK
D9 1SS119
Q6 2SA1048
D10 TLR124
Q9 2SA1048
D15 1SS119
Q10 2SC2785
Q7 2SA1048
D17 RD8.2ESB2
D11 RD8.2ESB2
D14 1SS119
D16 1SS119
Q8 2SC2785
D18 1SS119
D19 1SS119
D13 1SS119
D12 1SS119
D8 1SS119
D7 TLR124
Q1 2SA1048
D3 1SS119
Q5 2SA1048
Q2 2SC2785
Q3 2SA1048
Q4 2SC2785
D4 1SS119
D1 1SS119
D6 RD8.2ESB2
D5 1SS119
D2 RD8.2ESB2
(OVER VOLTAGE PROTECTOR)
GB
(AC RECT, DC REG) GA

GA BO

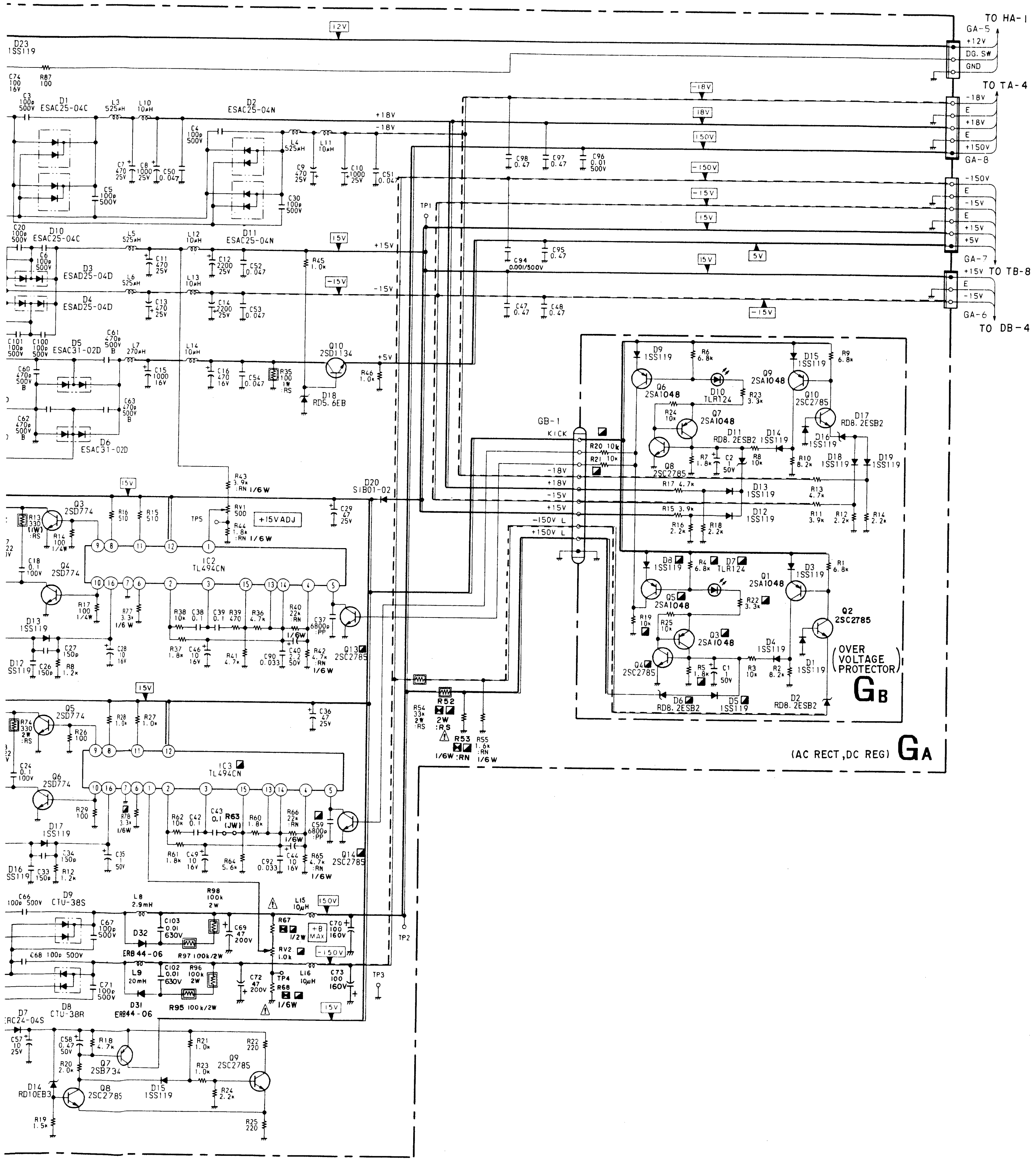
| IC1 |
|---|
| 2 |
| 3 |

| Q1 |
|---|
| 2 |
| 3 |
| 4 |
| 5 |
| 6 |
| 7 |
| 8 |
| 9 |
| 10 |
| 11 |
| 12 |
| 13 |
| 14 |

| D1 |
|---|
| 2 |
| 3 |
| 4 |
| 5 |
| 6 |
| 7 |
| 8 |
| 9 |
| 10 |
| 11 |
| 12 |
| 13 |
| 14 |
| 15 |
| 16 |
| 17 |
| 18 |
| 19 |
| 20 |
| 21 |
| 22 |
| 23 |
| 24 |
| 25 |
| 26 |
| 27 |
| 28 |
| 29 |
| 30 |
| 31 |
| 32 |

⁘NOTE

| Model<br>Ref | BVM-1410P (PAL) | BVM-1410PM (PAL-M) |
|---|---|---|
| C91 | 0.0047 20% 400V | JW |
| C93 | 0.0047 20% 400V | JW |
| FUSE | 2A/250V | 4A/125V |


TO HA-1
GA-5
+12V
DG. S#
GND
TO TA-4
-18V
E
+18V
+150V
GA-8
-150V
-15V
+15V
+5V
GA-7
TO TB-8
GA-6
TO DB-4
TP1
TP2
TP3
TP4
TP5
GB-1
KICK
+15V ADJ
IC2
TL494CN
IC3
TL494CN
Q10
2SD1134
D20
SIB01-02
(OVER VOLTAGE PROTECTOR)
GB
(AC RECT, DC REG)
GA

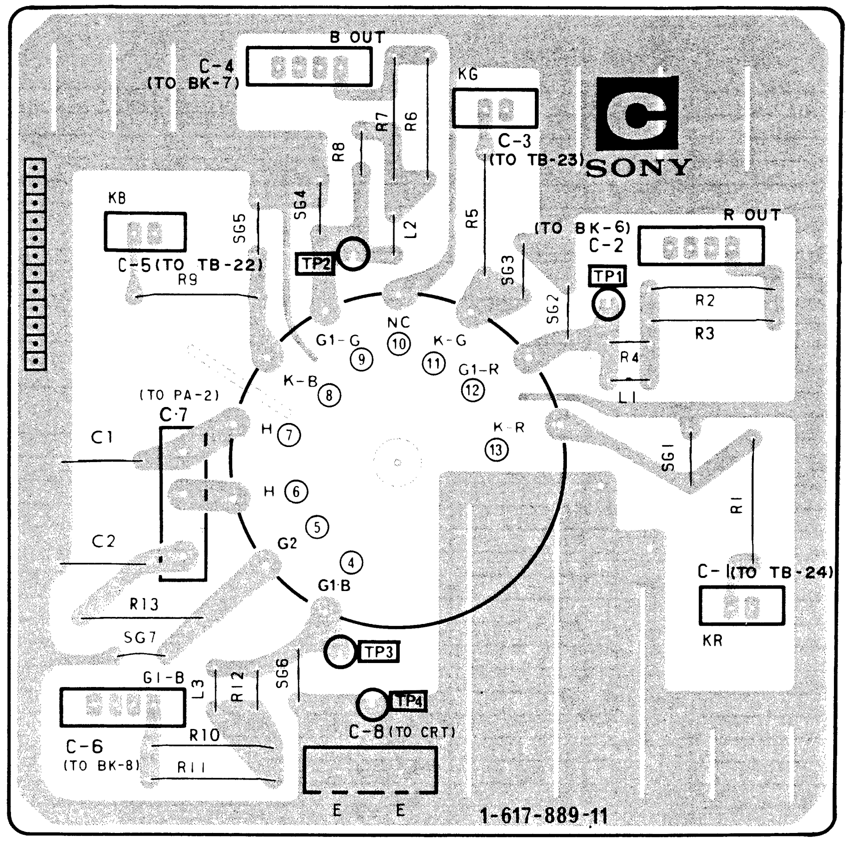
GA BOARD

| | | |
|---|---|---|
| IC1 | MC5433 | STARTER |
| 2 | TL494CN | DC REG |
| 3 | TL494CN | DC REG |
| | | |
| | | |
| Q1 | STR8124 | DC-DC CONV. |
| 2 | STR8124 | DC-DC CONV. |
| 3 | 2SD774 | CONV. DRIVE |
| 4 | 2SD774 | CONV. DRIVE |
| 5 | 2SD774 | CONV. DRIVE |
| 6 | 2SD774 | CONV. DRIVE |
| 7 | 2SB734 | SOFT. START |
| 8 | 2SC2785 | SOFT. START |
| 9 | 2SC2785 | SOFT. START |
| 10 | 2SD1134 | +5V REG. |
| 11 | 2SA1048 | D.G. CONTROL |
| 12 | 2SD774 | D.G. CONTROL |
| 13 | 2SC2785 | O.V.P SW |
| 14 | 2SC2785 | O.V.P SW |
| | | |
| | | |
| D1 | ESAC25-04C | +18V RECT |
| 2 | ESAC25-04N | -18V RECT |
| 3 | ESAD25-04D | +15V RECT |
| 4 | ESAD25-04D | -15V RECT |
| 5 | ESAC31-02D | +5V RECT |
| 6 | ESAC31-02D | -5V RECT |
| 7 | ERC24-045 | START. RECT |
| 8 | CTU-38R | -150V RECT |
| 9 | CTU-38S | +150V RECT |
| 10 | ESAC25-04C | +18V RECT |
| 11 | ESAC25-04N | -18V RECT |
| 12 | 1SS119 | O.C.P RECT |
| 13 | 1SS119 | O.C.P RECT |
| 14 | RD10EB3T | STARTER |
| 15 | 1SS119 | STARTER |
| 16 | 1SS119 | O.C.P RECT |
| 17 | 1SS119 | O.C.P RECT |
| 18 | RD5.6E-B2TN | +5V REG |
| 20 | SIB01-02 | DC. STOPPER |
| 21 | RB406N | AC RECT |
| 22 | uPC574J | O.V.P |
| 23 | 1SS119 | DISCHARGE |
| 24 | RD10EB3T | +10V REG |
| 25 | 1SS119 | SW PROTECT |
| 26 | CR3CM-8 | O.V.P |
| 27 | ERB81-004 | CONV. DRIVE |
| 28 | ERB81-004 | CONV. DRIVE |
| 29 | ERB81-004 | CONV. DRIVE |
| 30 | ERB81-004 | CONV. DRIVE |
| 31 | ERB44-06 | |
| 32 | ERB44-06 | |

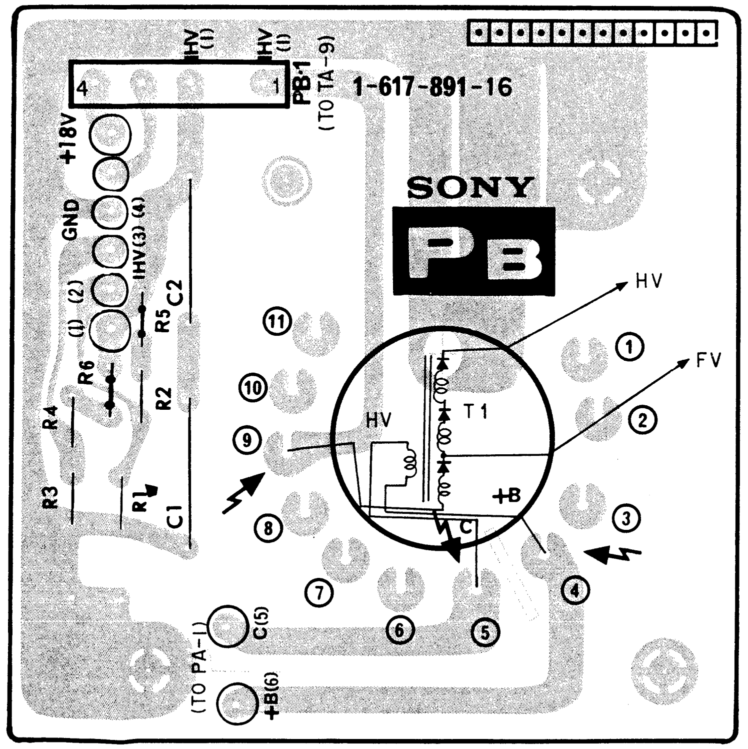
GB BOARD

| | | |
|---|---|---|
| Q1 | 2SA1048 | O.V.P (-150V) |
| 2 | 2SC2785 | O.V.P (-150V) |
| 3 | 2SA1048 | O.V.P (+150V) |
| 4 | 2SC2785 | O.V.P (+150V) |
| 5 | 2SA1048 | O.V.P (+150V) |
| 6 | 2SA1048 | O.V.P (${}^{+15}_{+18}$V) |
| 7 | 2SA1048 | O.V.P (${}^{+15}_{+18}$V) |
| 8 | 2SC2785 | O.V.P (${}^{+15}_{+18}$V) |
| 9 | 2SA1048 | O.V.P (${}^{-15}_{-18}$V) |
| 10 | 2SC2785 | O.V.P (${}^{-15}_{-18}$V) |
| | | |
| | | |
| D1 | 1SS119 | PROTECTOR |
| 2 | RD8.2ES-T1B2 | REFERENCE |
| 3 | 1SS119 | PROTECTOR |
| 4 | 1SS119 | MIX. |
| 5 | 1SS119 | MIX. |
| 6 | RD8.2ES-T1B2 | REFERENCE |
| 7 | TLR124 | O.V.P INDICATE |
| 8 | 1SS119 | PROTECTOR |
| 9 | 1SS119 | PROTECTOR |
| 10 | TLR124 | O.V.P INDICATE |
| 11 | RD8.2ES-T1B2 | REFERENCE |
| 12 | 1SS119 | MIX. |
| 13 | 1SS119 | MIX. |
| 14 | 1SS119 | MIX. |
| 15 | 1SS119 | PROTECTOR |
| 16 | 1SS119 | PROTECTOR |
| 17 | RD8.2ES-T1B2 | REFERENCE |
| 18 | 1SS119 | MIX. |
| 19 | 1SS119 | MIX. |

## C board (CRT SOCKET)

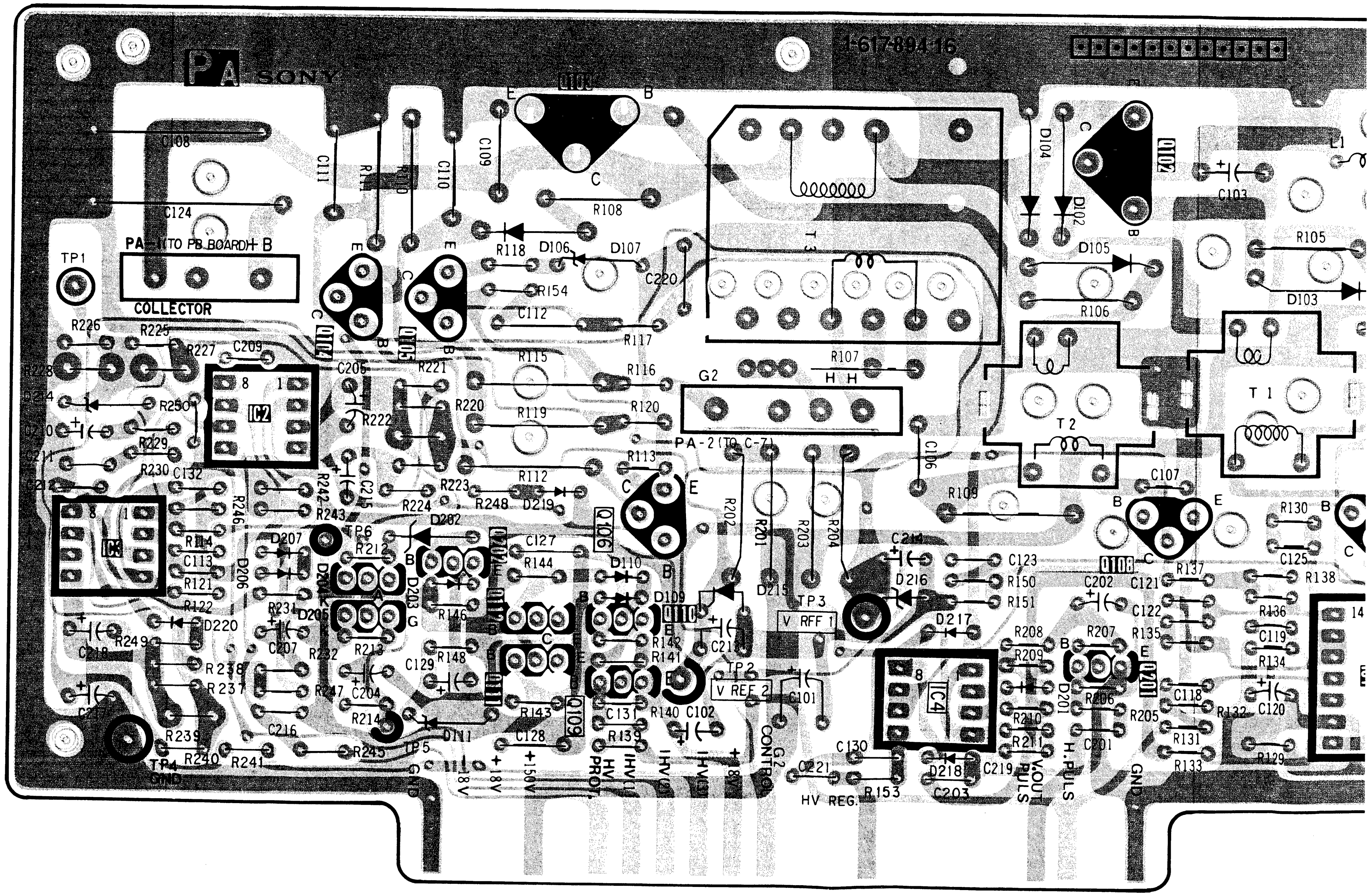

B OUT
C-4 (TO BK-7)
KG
C-3 (TO TB-23)
C
SONY
KB
C-5 (TO TB-22)
(TO BK-6) C-2
R OUT
TP1
TP2
TP3
TP4
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R13
L1
L2
L3
SG1
SG2
SG3
SG4
SG5
SG6
SG7
NC
G1-G
K-G
G1-R
K-B
K R
H
G2
G1-B
(TO PA-2) C-7
C1
C2
C-1 (TO TB-24)
KR
C-6 (TO BK-8)
C-8 (TO CRT)
E
E
1-617-889-11

## PB board (FBT)

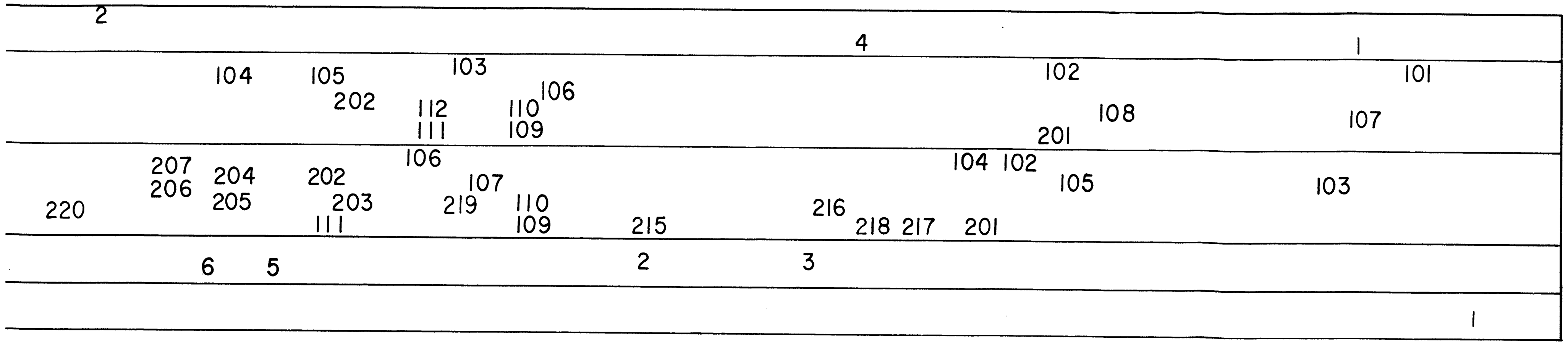

HV (1)
HV (1)
4
1
PB-1 (TO TA-9)
1-617-891-16
+18V
GND
(1) (2)
IHV(3) (4)
SONY
PB
HV
FV
HV
T1
+B
C
R1
R2
R3
R4
R5
R6
C1
C2
C(5)
(TO PA-1)
+B(6)

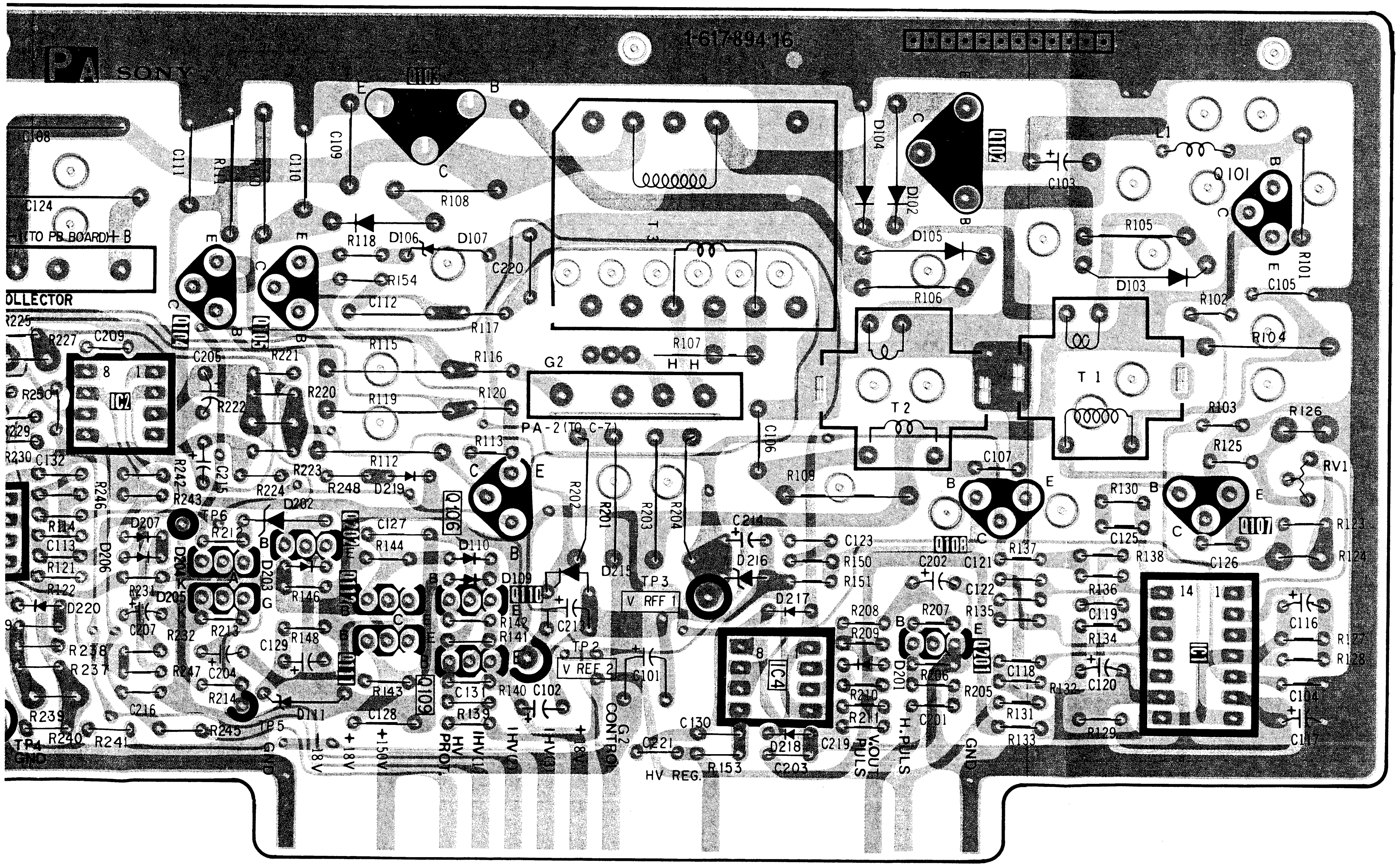
## PA board (HIGH VOLTAGE PROTECTOR)

| | |
|---|---|
| IC | 3 2 4 |
| Q | 104 105 202 112 111 103 110 109 106 201 102 108 |
| D | 214 220 207 206 204 205 202 111 203 106 219 107 110 109 215 216 218 217 104 201 102 105 |
| TP | 1 4 6 5 2 3 |
| RV | |


1-617894-16
PA SONY
PA-1 (TO PB BOARD) +B
COLLECTOR
TP1
TP2
TP3
TP4 GND
TP5
TP6
PA-2 (TO C-7)
G2
H H
T1
T2
T3
L1
IC2
IC3
IC4
V RFF 1
V REF 2
+18V
+18V
+150V
HV PROT.
IHV(1)
IHV(2)
IHV(3)
+18V
G2 CONTROL
HV REG.
V.OUT PULS
H.PULS
GND

TECTOR)


2
4
1
104
105
103
106
202
112
111
110
109
102
101
108
201
107
207
206
204
205
202
203
111
106
107
219
110
109
104 102
105
103
220
215
216
218 217
201
6
5
2
3
1

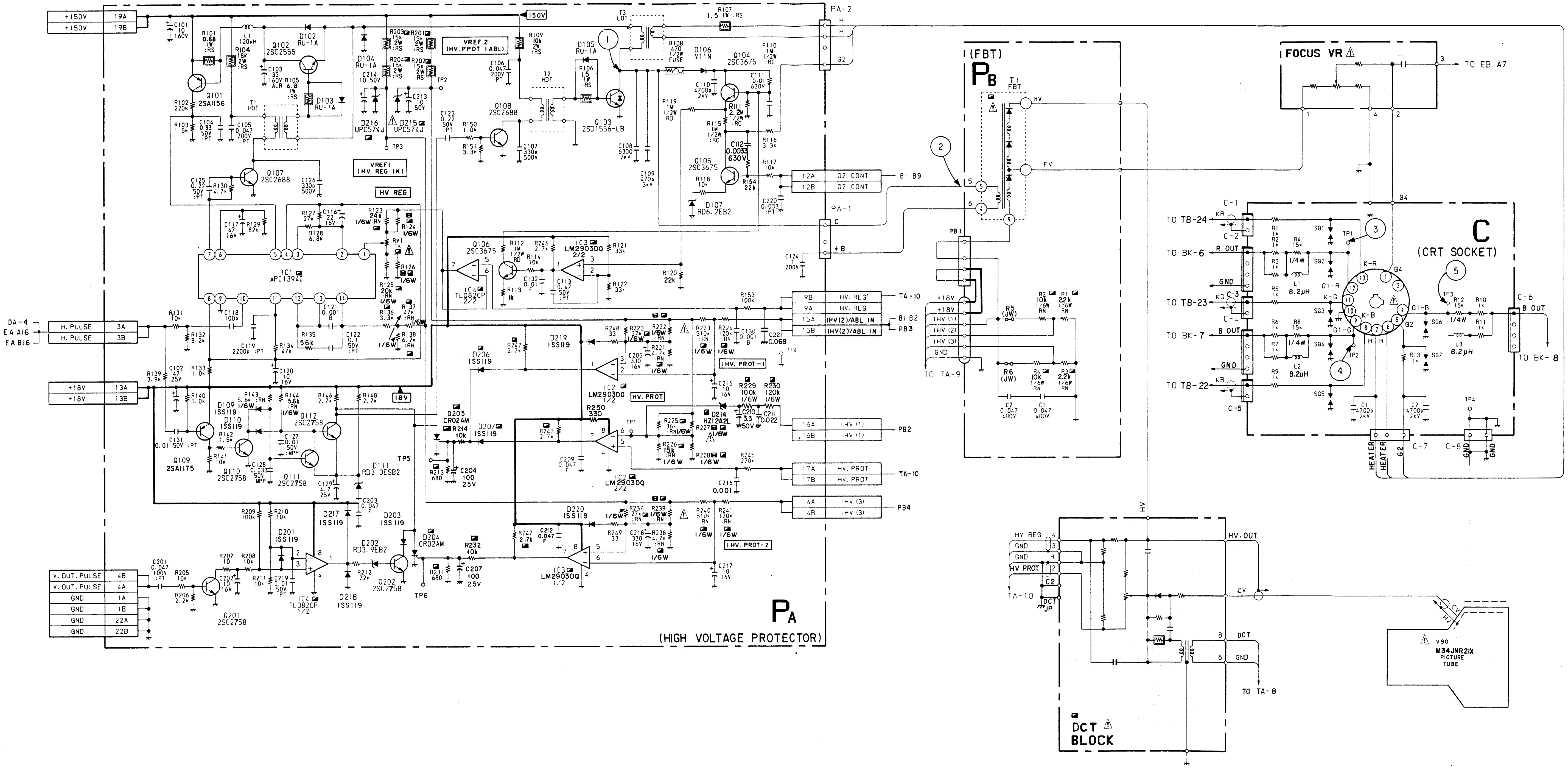

1-617-894-16
PA
SONY
Q103
Q102
Q101
Q104
Q105
Q106
Q107
Q108
Q109
Q201
Q202
IC1
IC2
IC4
T1
T2
T3
L1
RV1
G2
H H
PA-2 (TO C-7)
(TO PB BOARD) + B
COLLECTOR
TP1
TP2
TP3
TP4 GND
TP5
TP6
V REF 1
V REF 2
+18V
+150V
-18V
HV PROT.
HV V
G2 CONTROL
HV REG.
V.OUT PULS
H.PULS
GND
D102
D103
D104
D105
D106
D107
D109
D110
D111
D201
D202
D203
D204
D205
D206
D207
D215
D216
D217
D218
D219
D220
C101
C103
C104
C105
C106
C107
C108
C109
C110
C111
C112
C113
C116
C117
C118
C119
C120
C121
C122
C123
C124
C125
C126
C127
C128
C129
C130
C131
C132
C201
C202
C203
C204
C205
C207
C209
C213
C214
C215
C216
C219
C220
C221
R101
R102
R103
R104
R105
R106
R107
R108
R109
R112
R113
R115
R116
R117
R118
R119
R120
R121
R122
R123
R124
R125
R126
R127
R128
R129
R130
R131
R132
R133
R134
R135
R136
R137
R138
R139
R140
R141
R142
R143
R144
R146
R148
R150
R151
R153
R154
R201
R202
R203
R204
R205
R206
R207
R208
R209
R210
R211
R212
R213
R214
R220
R221
R222
R223
R224
R225
R227
R229
R230
R231
R232
R237
R238
R239
R240
R241
R242
R243
R245
R246
R247
R248
R250
E
B
C
G
K
A
8
1
14

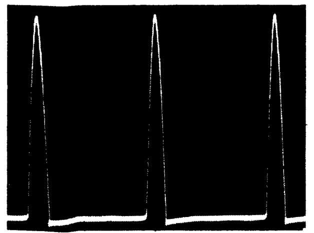
PA BOARD

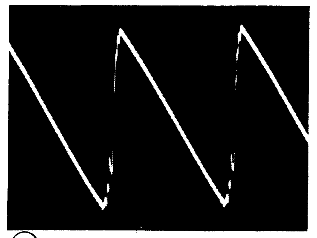
| | | |
|---|---|---|
| IC1 | uPC1394C | P.W.M CONTROL |
| 2 | LM2903DQ | COMPARATOR |
| 3 | LM2903DG | COMPARATOR |
| 4 | TL082CP | BUFFER & COMPARATOR |
| | | |
| | | |
| Q101 | 2SA1156 | O.V.P |
| 102 | 2SC2555 | DC-DC CONV. |
| 103 | 2SD1556 | HV CONV. |
| 104 | 2SC3675 | G2 REGULATOR |
| 105 | 2SC3675 | G2 REGULATOR |
| 106 | 2SC3675 | G2 REGULATOR |
| 107 | 2SC2688 | DC-DC CONV. DRIVE |
| 108 | 2SC2688 | HV CONV. DRIVE |
| 109 | 2SA1048 | HV CONV. DRIVE |
| 110 | 2SC2785 | HV CONV. DRIVE |
| 111 | 2SC2785 | HV CONV. DRIVE |
| 112 | 2SC2785 | HV CONV. DRIVE |
| 201 | 2SC2785 | CRT PROTECTOR |
| 202 | 2SC2785 | CRT PROTECTOR |
| D102 | RU-1A | DC-DC CONV. |
| 103 | RU-1A | DC-DC CONV. |
| 104 | RU-1A | DC-DC CONV. |
| 105 | RU-1A | HV CONV. DRIVE |
| 106 | V11N | RECTIFIER |
| 107 | RD6.2EB2 | G2 CONTROL |
| 109 | 1SS148 | HV CONV. DRIVE |
| 110 | 1SS148 | HV CONV. DRIVE |
| 111 | RD3.0ESB2 | HV CONV. DRIVE |
| 201 | 1SS148 | PROTECTOR |
| 202 | RD3.9EB2 | CRT PROTECTOR |
| 203 | 1SS148 | CRT PROTECTOR |
| 204 | CR02AM | PROTECTOR |
| 205 | CR02AM | PROTECTOR |
| 206 | 1SS148 | MIX |
| 207 | 1SS148 | MIX |
| 214 | HZ12A2L | HV PROT |
| 215 | uPC574J | HV PROT. REF. |
| 216 | uPC574J | HV PROT. REF. |
| 217 | 1SS148 | PROT |
| 218 | 1SS148 | PROT |
| 219 | 1SS148 | PROT |
| 220 | 1SS148 | PROT |

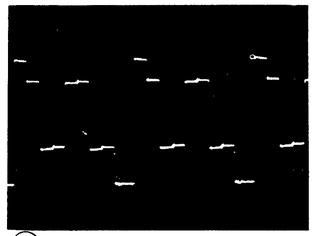
- ▨ : Conductor side pattern
- ▨ : Component side pattern

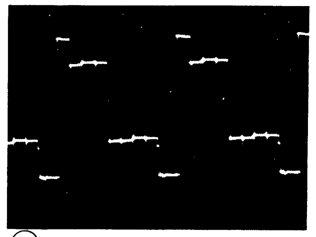
**C board (CRT SOCKET)**
**PA board (HIGH VOLTAGE PROTECTOR)**
**PB board (FBT)**

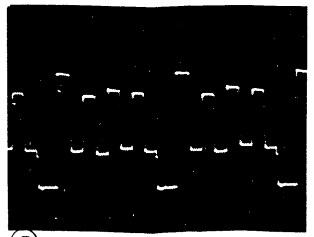

+150V 19A
+150V 19B
H. PULSE 3A
H. PULSE 3B
DA-4
EA A16
EA B16
+18V 13A
+18V 13B
V. OUT. PULSE 4B
V. OUT. PULSE 4A
GND 1A
GND 1B
GND 22A
GND 22B
150V
18V
VREF 2 (HV. PPOT (ABL)
VREF1 (HV. REG 1K)
HV REG
IC1 μPC1394C
Q101 2SA1156
Q102 2SC2555
Q103 2SD1556-LB
Q104 2SC3675
Q105 2SC3675
Q106 2SC3675
Q107 2SC2688
Q108 2SC2688
Q109 2SA1175
Q110 2SC2758
Q111 2SC2758
Q112 2SC2758
Q201 2SC2758
Q202 2SC2758
IC2 LM2903DQ
IC3 LM2903DQ
IC4 TL082CP
D215 UPC574J
D216 UPC574J
T1 HDT
T2 HDT
T3 LOT
HV. PROT
IHV. PROT-1
IHV. PROT-2
PA-1
PA-2
12A G2 CONT
12B G2 CONT
9B HV. REG'
9A HV. REG
15A IHV(2)/ABL IN
15B IHV(2)/ABL IN
16A IHV (1)
16B IHV (1)
17A HV. PROT
17B HV. PROT
14A IHV (3)
14B IHV (3)
TA-10
B1 B9
B1 B2
PB3
PB2
PB4
PA (HIGH VOLTAGE PROTECTOR)
PB (FBT)
T1 FBT
HV
FV
PB1
TO TA-9
FOCUS VR
TO EB A7
C (CRT SOCKET)
TO TB-24
TO BK-6
TO TB-23
TO BK-7
TO TB-22
TO BK-8
C-1
C-2
C-3
C-4
C-5
C-6
C-7
C-8
HEATER
G2
GND
G4
K-R
K-G
K-B
G1-R
G1-G
G1-B
R OUT
B OUT
HV. OUT
CV
DCT
TO TA-8
HV REG
HV PROT
DCT BLOCK
V901 M34JNR21X PICTURE TUBE


① 1.120Vp-p (H)

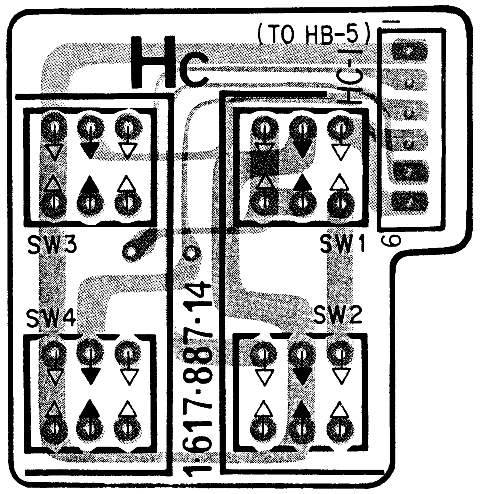

② 2.4Ap-p (H)


③64Vp-p (H)

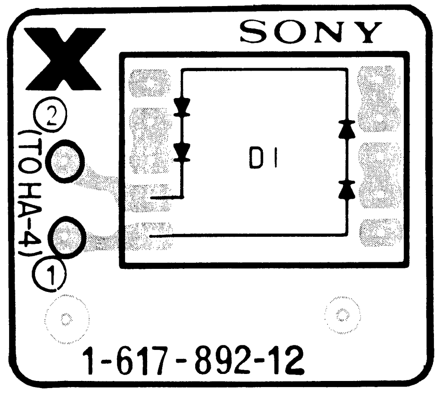

④68Vp-p (H)


⑤61Vp-p (H)

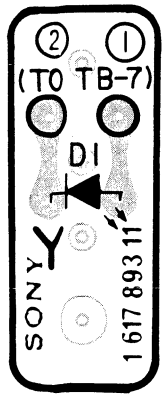
**HC board (INPUT SELECT)**


Hc
(TO HB-5)
HC-1
SW1
SW2
SW3
SW4
1-617-887-14

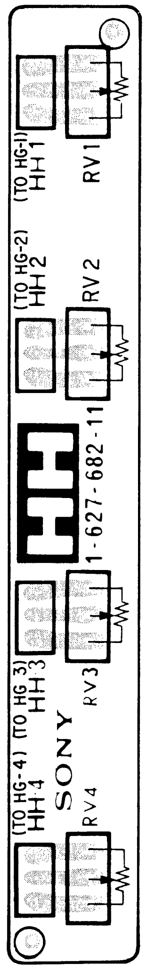
**X board (TALLY)**


X
SONY
(TO HA-4)
D1
1-617-892-12

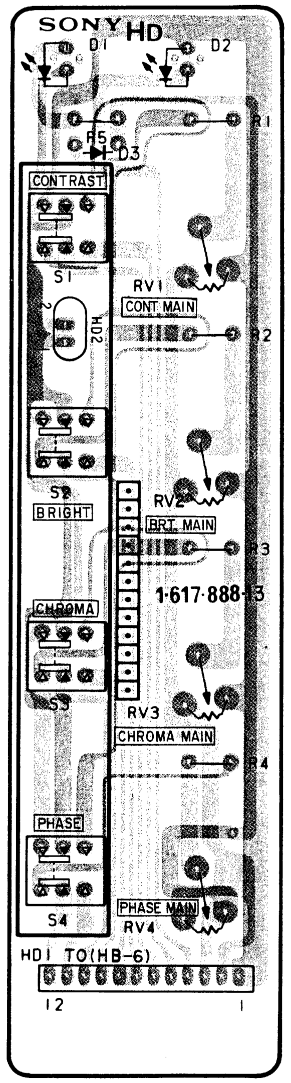
**Y board (POWER LED)**


(TO TB-7)
D1
Y
SONY
1 617 893 11

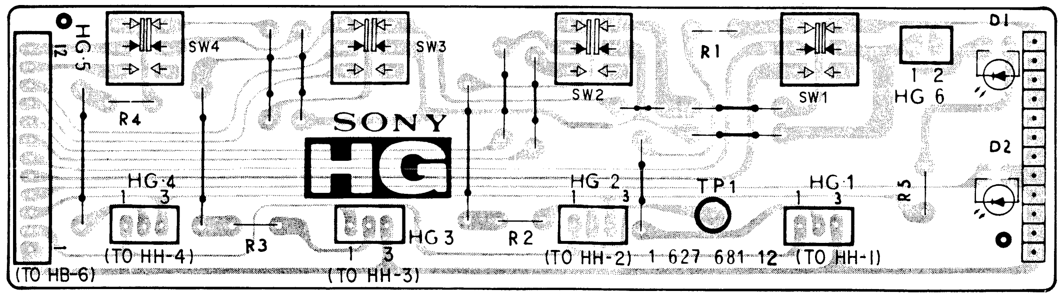
**HH board (CONTROL PANEL 1)**
Serial No. 2,001,397 and Higher (BVM-1410P)
Serial No. 2,000,021 and Higher (BVM-1410PM)


(TO HG-1) HH1
RV1
(TO HG-2) HH2
RV2
HH
1-627-682-11
(TO HG 3) HH3
RV3
SONY
(TO HG-4) HH4
RV4

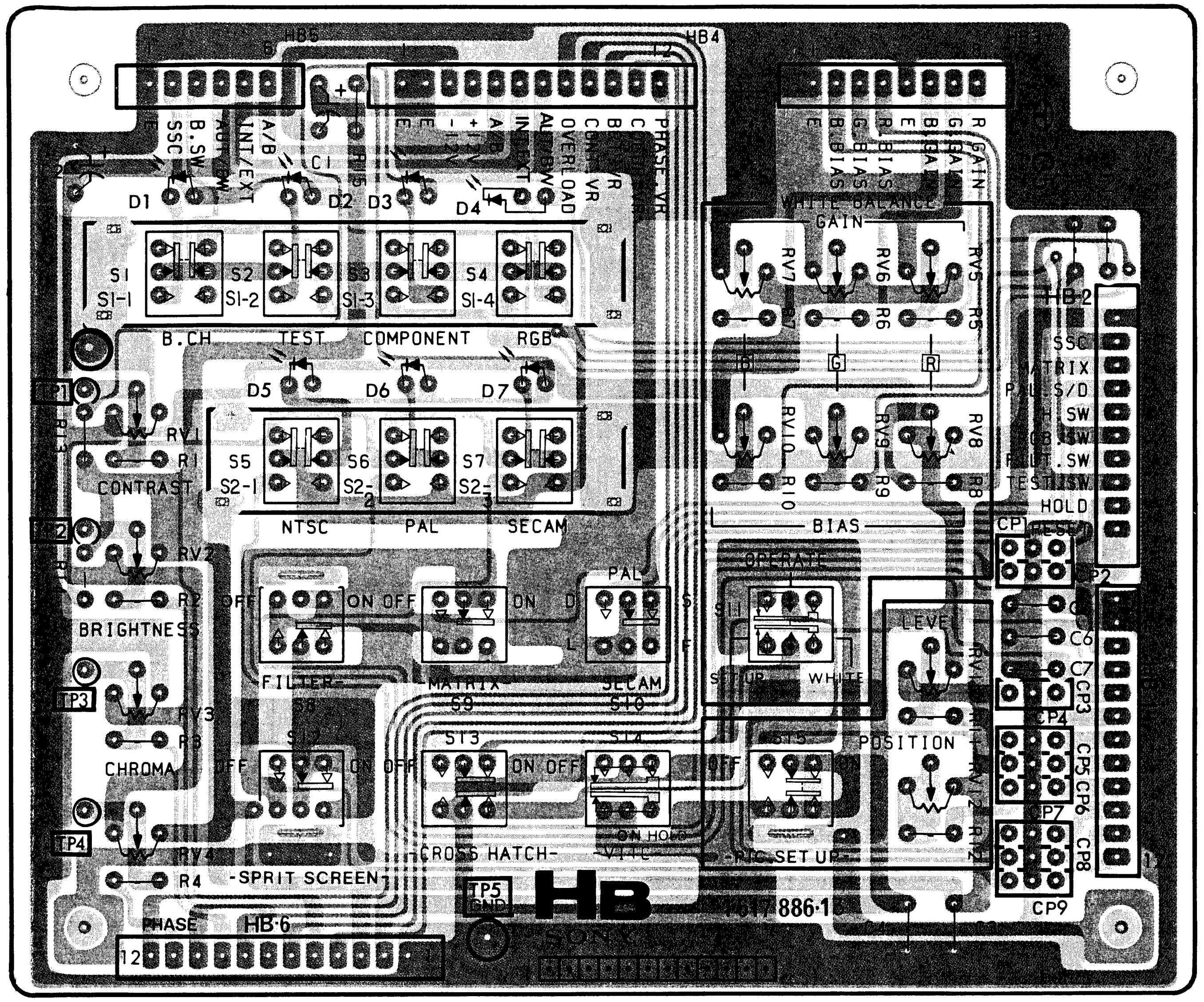
**HD board (MANUAL CONTROL)**
Serial No. Up to 2,001,396) (BVM-1410P)
Serial No. Up to 2,000,020 (BVM-1410PM)


SONY HD
D1
D2
CONTRAST
S1
RV1
CONT MAIN
BRIGHT
S2
RV2
BRT MAIN
1-617-888-13
CHROMA
S3
RV3
CHROMA MAIN
PHASE
S4
PHASE MAIN
RV4
HD1 TO (HB-6)

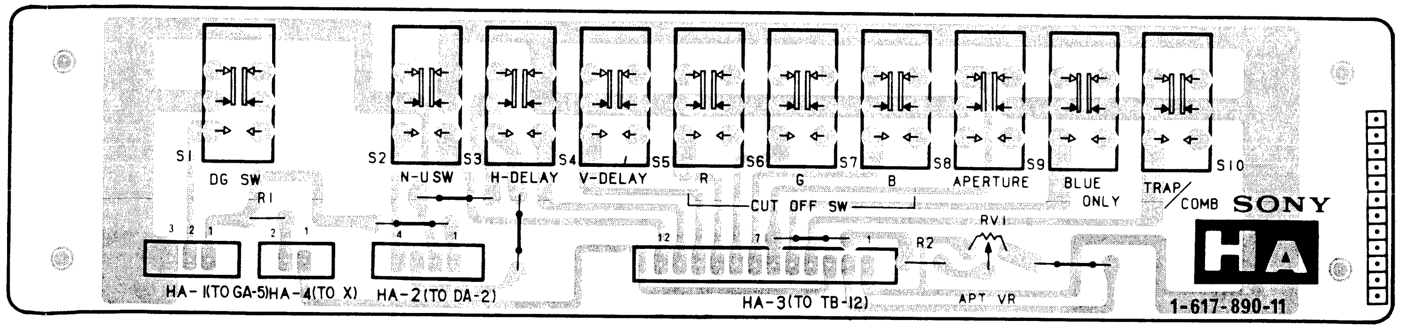
**HG board (CONTROL PANEL 2)**
Serial No. 2,001,397 and Higher (BVM-1410P)
Serial No. 2,000,021 and Higher (BVM-1410PM)


HG 5
SW4
SW3
SW2
SW1
R1
D1
HG 6
R4
SONY
HG
D2
HG 4
HG 2
TP1
HG 1
R5
R3
HG 3
R2
(TO HB-6)
(TO HH-4)
(TO HH-3)
(TO HH-2)
1 627 681 12
(TO HH-1)

**HB board (SYSTEM SWITCH)**

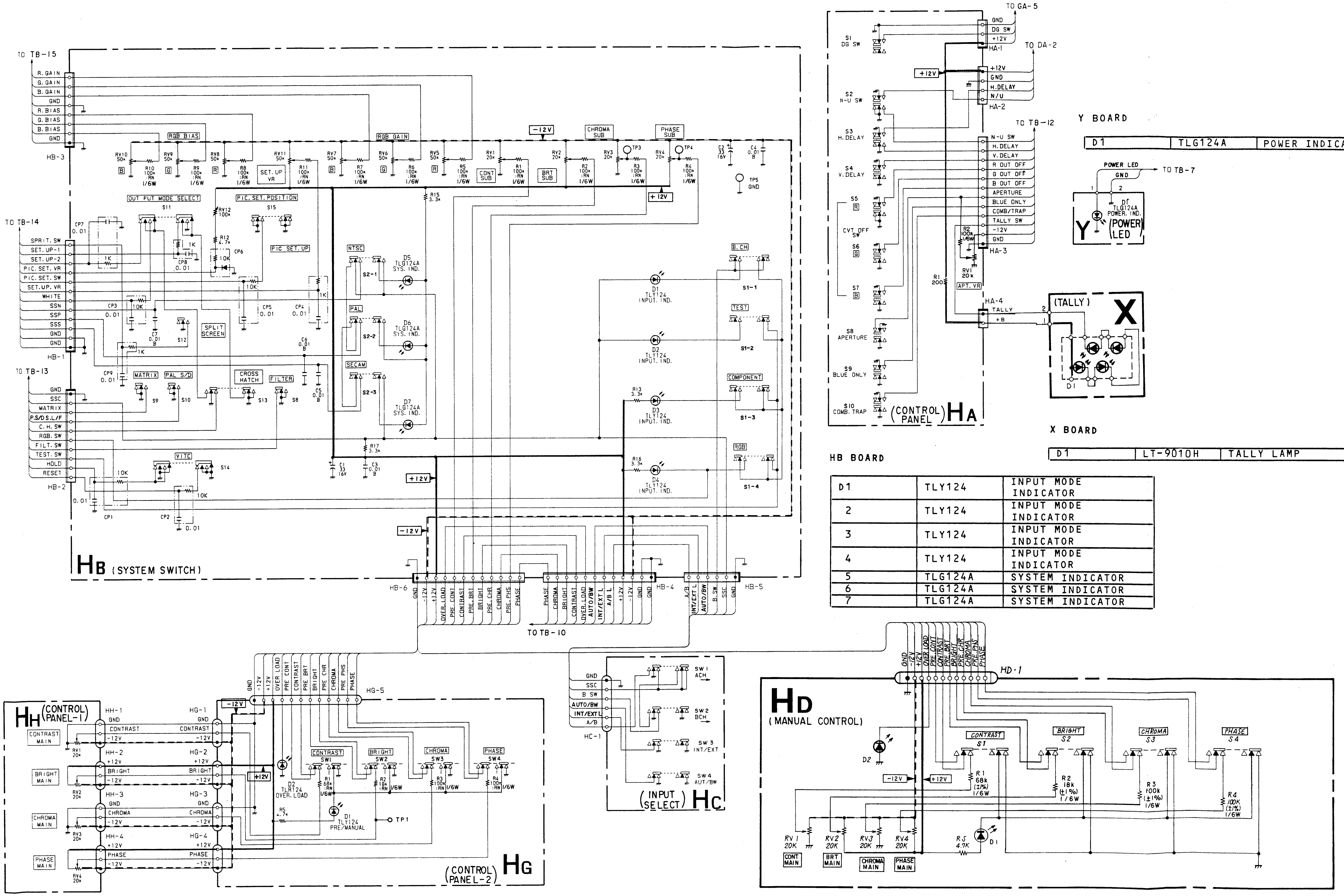

HB5
HB4
HB3
HB2
WHITE BALANCE
GAIN
BIAS
B.CH
TEST
COMPONENT
RGB
CONTRAST
NTSC
PAL
SECAM
BRIGHTNESS
FILTER
MATRIX
CHROMA
CROSS HATCH
SPRIT SCREEN
PHASE
HB 6
OPERATE
SET UP
WHITE
LEVEL
POSITION
TP5 GND
HB
1-617-886-1

**HA board (LEFT CONTROL PANEL)**


S1
DG SW
S2
N-USW
S3
H-DELAY
S4
V-DELAY
S5
R
S6
G
S7
B
S8
APERTURE
S9
BLUE ONLY
S10
TRAP/COMB
CUT OFF SW
R1
R2
RV1
APT VR
SONY
HA
HA-1(TO GA-5)
HA-4(TO X)
HA-2(TO DA-2)
HA-3(TO TB-12)
1-617-890-11

- ▨ : Conductor side pattern
- ▨ : Component side pattern

**HA board (LEFT CONTROL PANEL), HB board (SYSTEM SWITCH), HC board (INPUT SELECT), HD board (MANUAL CONTROL) Serial No. Up to 2,001,396 (BVM-1410P), Serial No. Up to 2,000,020 (BVM-1410PM), HG board (CONTROL PANEL 2) Serial No. 2,001,397 and Higher (BVM-1410P) Serial No. 2,000,021 and Higher (BVM-1410PM), HH board (CONTROL PANEL 1) Serial No. 2,001,397 and Higher (BVM-1410P), Serial No. 2,000,021 and Higher (BVM-1410PM), XB board (TALLY), Y board (POWER LED)**


HB (SYSTEM SWITCH)
HA (CONTROL PANEL)
HC (INPUT SELECT)
HD (MANUAL CONTROL)
HG (CONTROL PANEL-2)
HH (CONTROL PANEL-1)
X (TALLY)
Y (POWER LED)
TO TB-15
TO TB-14
TO TB-13
TO TB-10
TO TB-12
TO TB-7
TO GA-5
TO DA-2
HB-1
HB-2
HB-3
HB-4
HB-5
HB-6
HA-1
HA-2
HA-3
HA-4
HC-1
HD-1
HG-5
RGB BIAS
RGB GAIN
CHROMA SUB
PHASE SUB
OUT PUT MODE SELECT
PIC. SET. POSITION
SET. UP VR
NTSC
PAL
SECAM
SPLIT SCREEN
CROSS HATCH
MATRIX
PAL S/D
FILTER
VITC
B. CH
TEST
COMPONENT
RGB
CONTRAST
BRIGHT
CHROMA
PHASE
APT. VR
POWER LED
TP1
TP3
TP4
TP5

### Y BOARD

| D1 | TLG124A | POWER INDICATOR |
|---|---|---|

### X BOARD

| D1 | LT-9010H | TALLY LAMP |
|---|---|---|

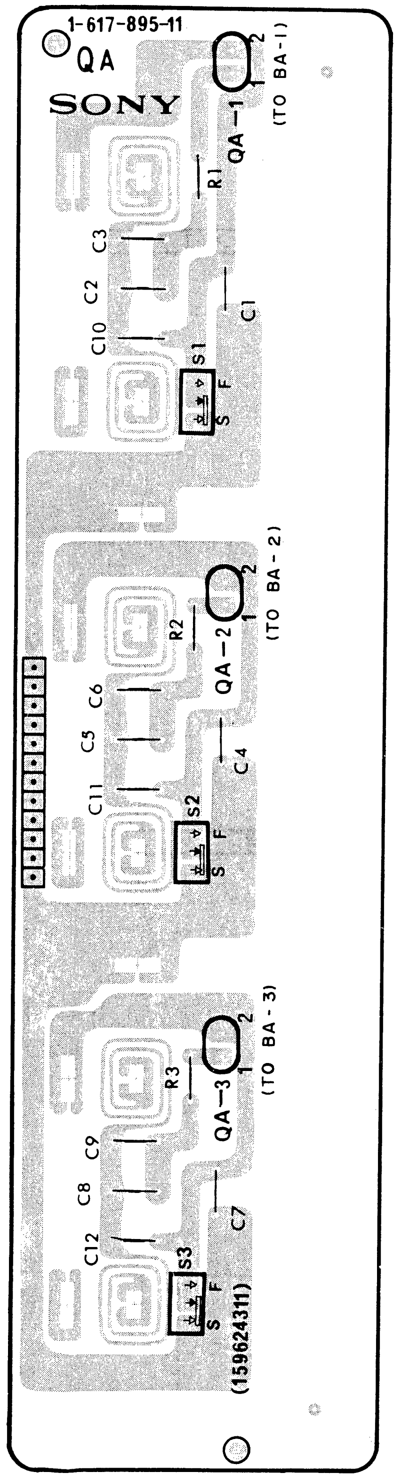
### HB BOARD

| | | |
|---|---|---|
| D1 | TLY124 | INPUT MODE INDICATOR |
| 2 | TLY124 | INPUT MODE INDICATOR |
| 3 | TLY124 | INPUT MODE INDICATOR |
| 4 | TLY124 | INPUT MODE INDICATOR |
| 5 | TLG124A | SYSTEM INDICATOR |
| 6 | TLG124A | SYSTEM INDICATOR |
| 7 | TLG124A | SYSTEM INDICATOR |

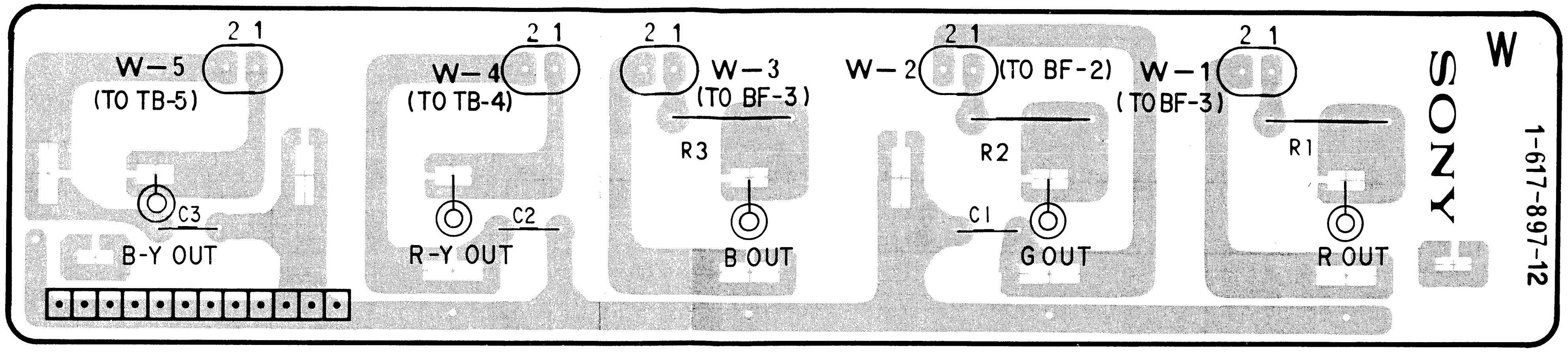
### HG/HD BOARD

| | | |
|---|---|---|
| D1 | TLY124 | PRE/MANUAL INDICATOR |
| 2 | TLR124 | OVER LOAD INDICATOR |

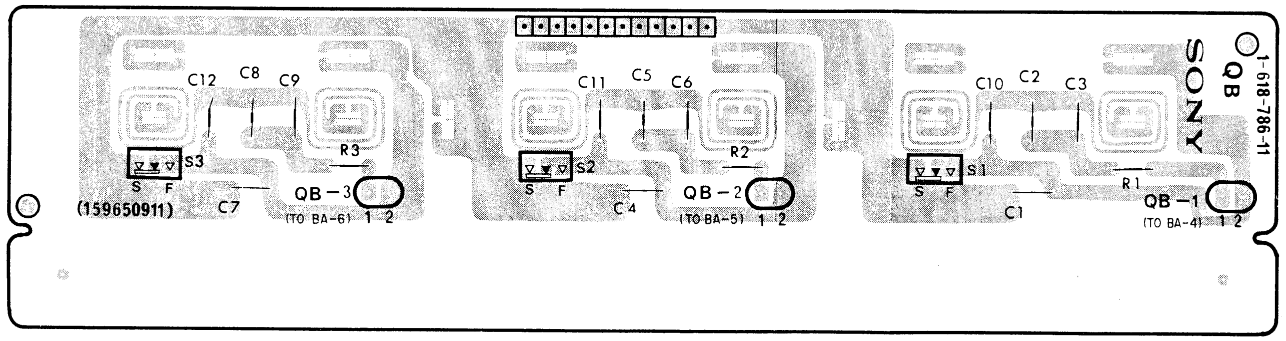
**QA board (COMPOSITE VIDEO INPUT)**


1-617-895-11
QA
SONY
QA-1
(TO BA-1)
R1
C3
C2
C10
C1
S1
S F
QA-2
(TO BA-2)
R2
C6
C5
C11
C4
S2
QA-3
(TO BA-3)
R3
C9
C8
C12
C7
S3
(159624311)
1 2

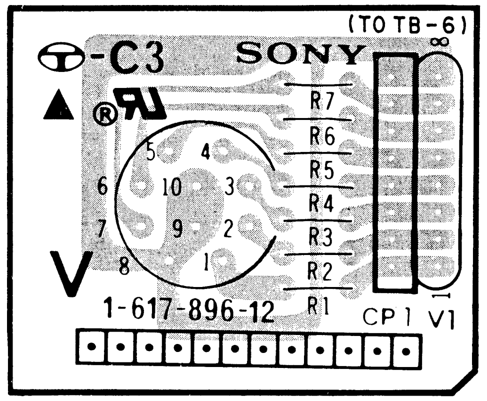
**W board (RGB/COMPONENT & VECTOR)**


W
SONY
1-617-897-12
W-5
(TO TB-5)
W-4
(TO TB-4)
W-3
(TO BF-3)
W-2
(TO BF-2)
W-1
(TO BF-3)
2 1
R3
R2
R1
C3
C2
C1
B-Y OUT
R-Y OUT
B OUT
G OUT
R OUT

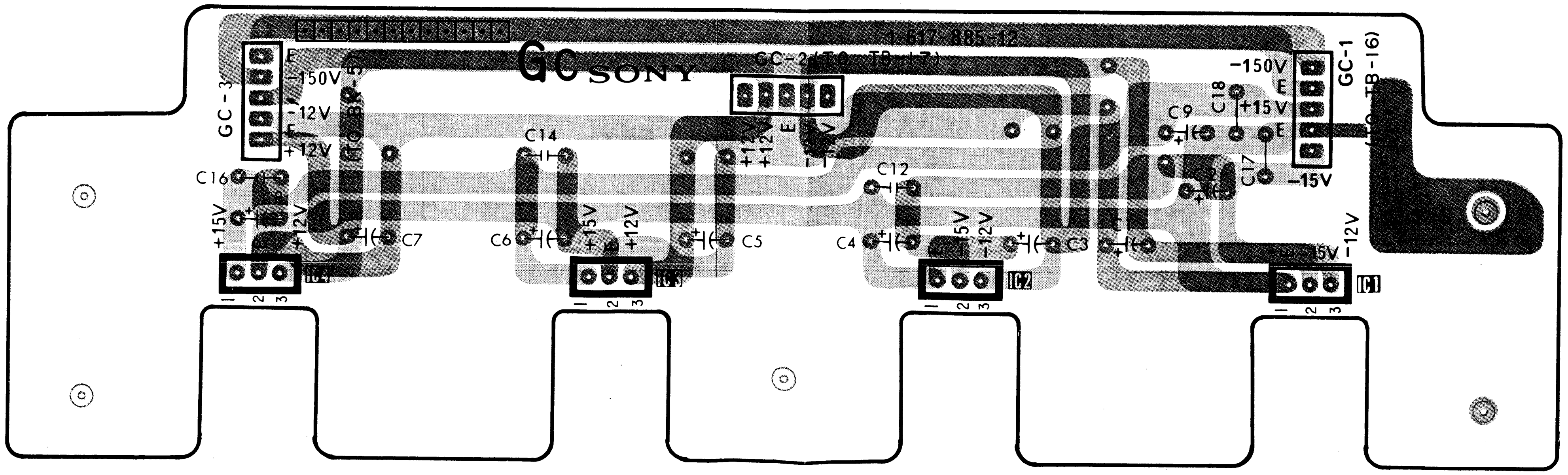
**QB board (RGB/COMPONENT INPUT)**


QB
SONY
1-618-786-11
C12
C8
C9
R3
S3
S F
QB-3
(TO BA-6)
1 2
C7
(159650911)
C11
C5
C6
R2
S2
QB-2
(TO BA-5)
C4
C10
C2
C3
R1
S1
QB-1
(TO BA-4)
C1

**V board (REMOTE)**

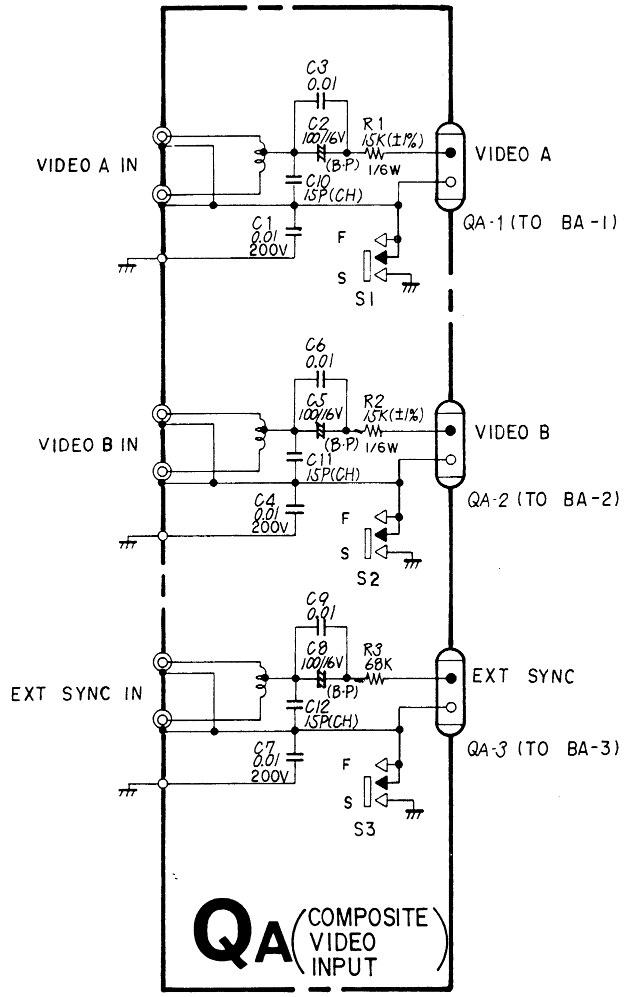

(TO TB-6)
C3
SONY
R7
R6
R5
R4
R3
R2
R1
1 2 3 4 5 6 7 8 9 10
V
1-617-896-12
CP1
V1

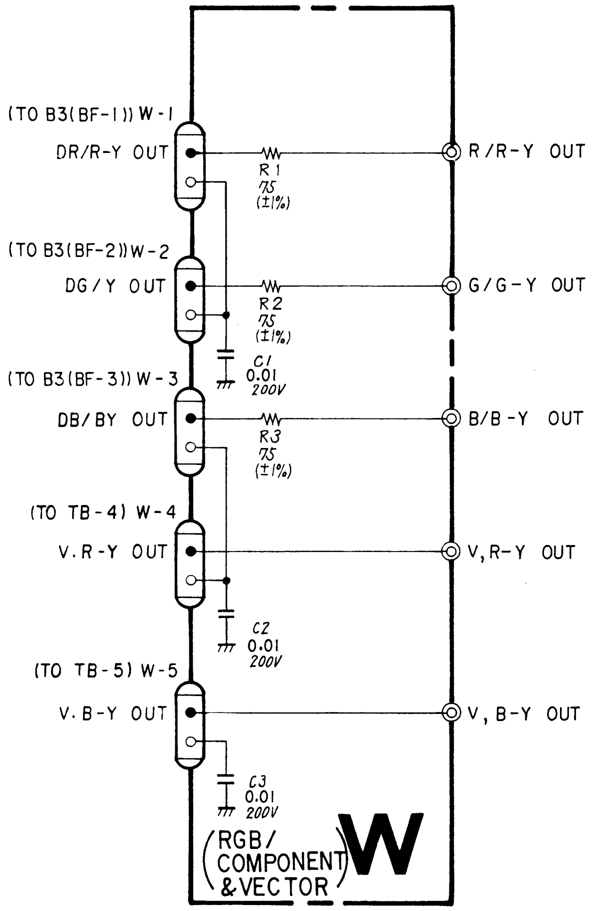
**GC board (REG)**

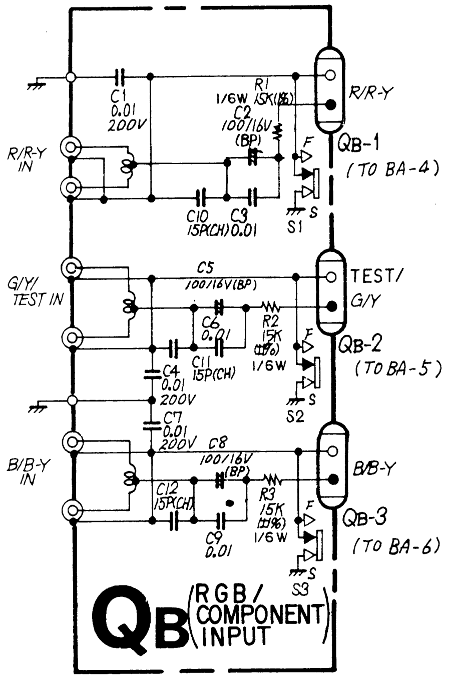

GC
SONY
1-617-885-12
GC-3
GC-2 (TO TB-17)
GC-1
(TO TB-16)
E
-150V
-12V
+12V
+15V
-15V
C1
C3
C4
C5
C6
C7
C9
C12
C14
C16
C17
C18
IC1
IC2
IC3
IC4
1 2 3

● ▨ : Conductor side pattern
● ▨ : Component side pattern

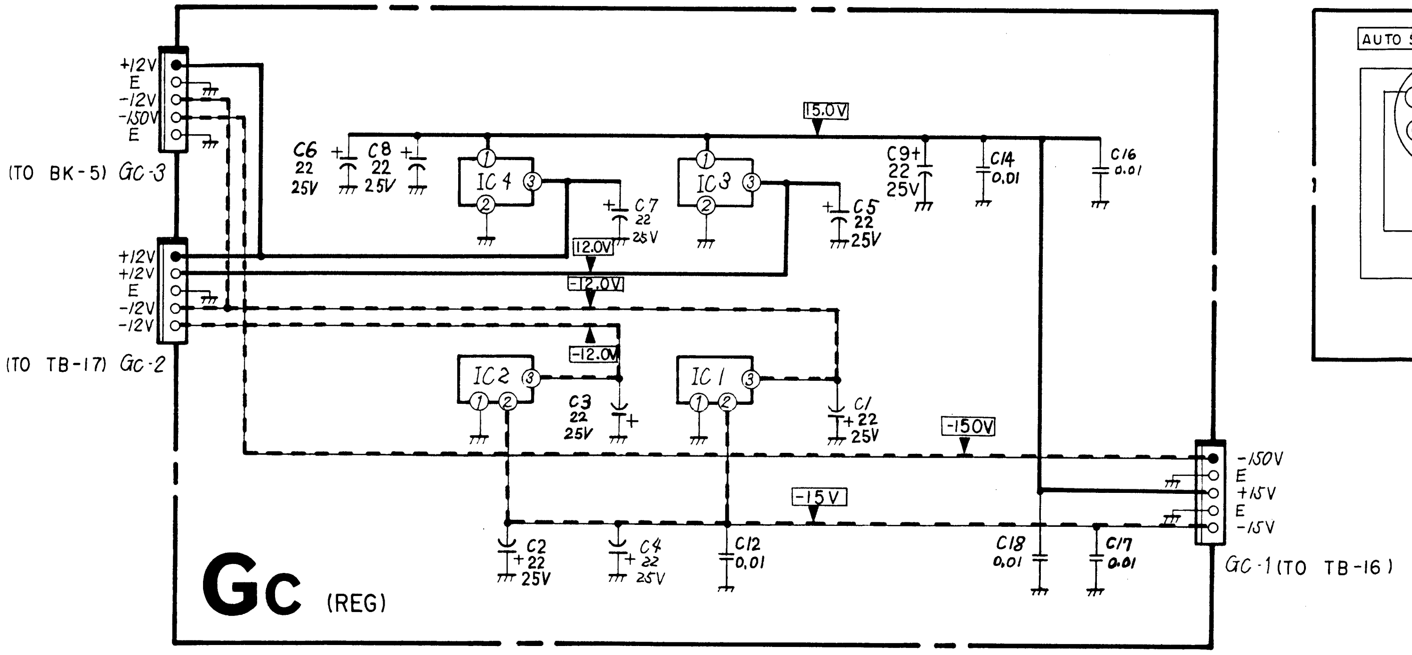
**GC board (REG) QA board (COMPOSITE VIDEO INPUT) QB board (RGB/COMPONENT INPUT)**
**V board (REMOTE) W board (RGB/COMPONENT & VECTOR)**

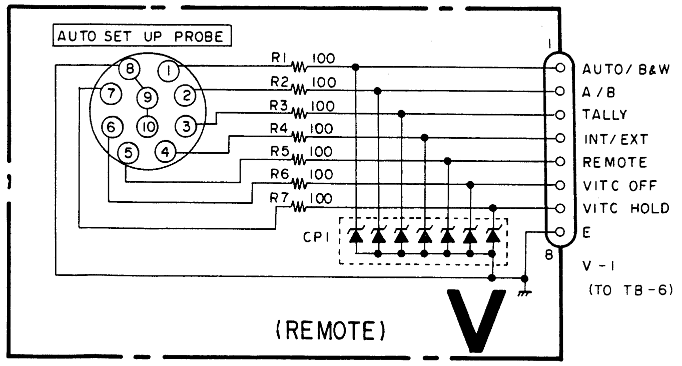

VIDEO A IN
C3 0.01
C2 100/16V (B-P)
R1 15K(±1%) 1/6W
C10 15P(CH)
C1 0.01 200V
F
S
S1
VIDEO A
QA-1 (TO BA-1)
VIDEO B IN
C6 0.01
C5 100/16V (B-P)
R2 15K(±1%) 1/6W
C11 15P(CH)
C4 0.01 200V
S2
VIDEO B
QA-2 (TO BA-2)
EXT SYNC IN
C9 0.01
C8 100/16V (B-P)
R3 68K
C12 15P(CH)
C7 0.01 200V
S3
EXT SYNC
QA-3 (TO BA-3)
QA (COMPOSITE VIDEO INPUT)


(TO B3(BF-1)) W-1
DR/R-Y OUT
R1 75 (±1%)
R/R-Y OUT
(TO B3(BF-2)) W-2
DG/Y OUT
R2 75 (±1%)
G/G-Y OUT
C1 0.01 200V
(TO B3(BF-3)) W-3
DB/BY OUT
R3 75 (±1%)
B/B-Y OUT
(TO TB-4) W-4
V.R-Y OUT
V,R-Y OUT
C2 0.01 200V
(TO TB-5) W-5
V.B-Y OUT
V, B-Y OUT
C3 0.01 200V
W (RGB/ COMPONENT & VECTOR)

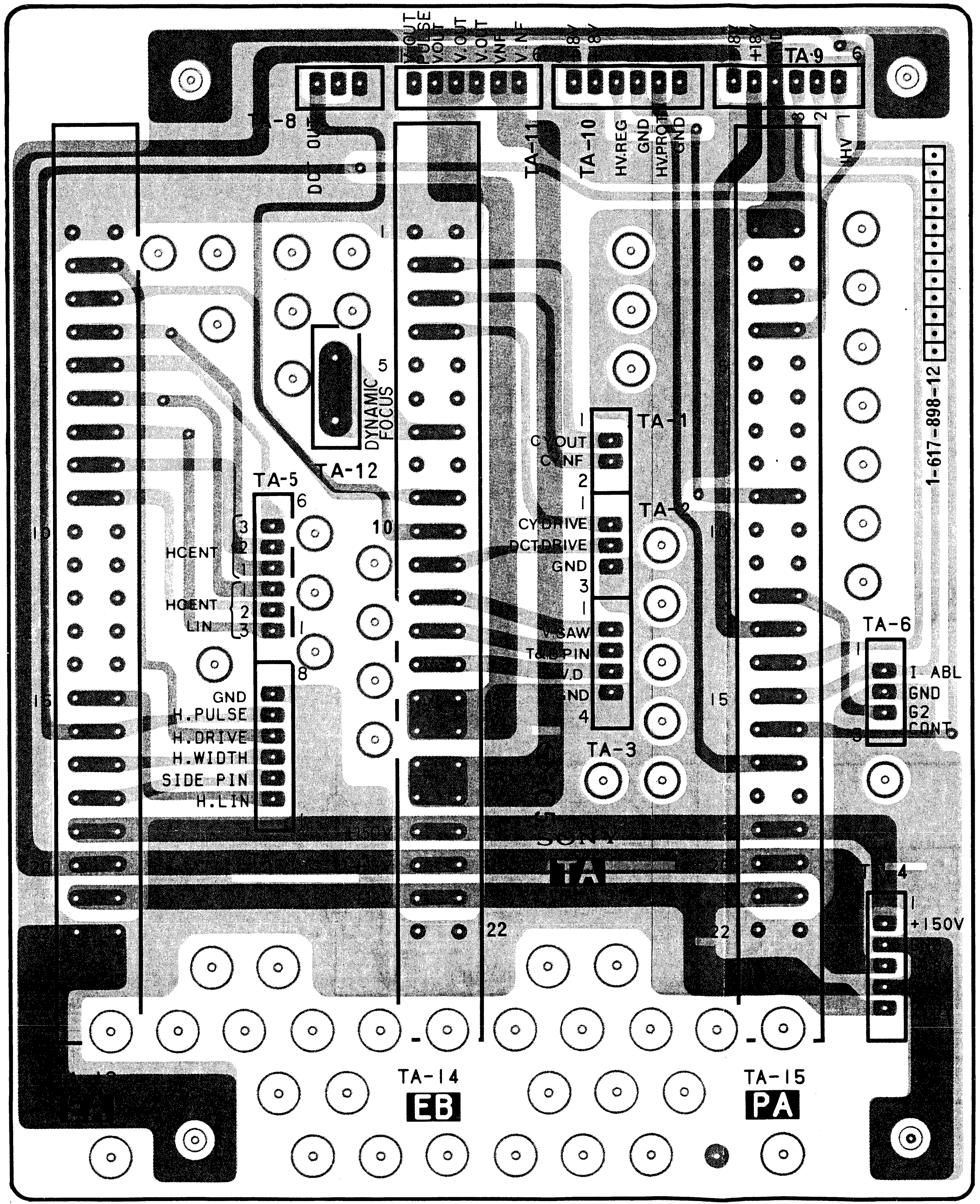

C1 0.01 200V
R1 1/6W 15K(1%)
C2 100/16V (BP)
R/R-Y IN
C10 15P(CH)
C3 0.01
F
S
S1
R/R-Y
QB-1 (TO BA-4)
G/Y/ TEST IN
C5 100/16V(BP)
C6 0.01
C11 15P(CH)
R2 15K (±1%) 1/6W
C4 0.01 200V
S2
TEST/ G/Y
QB-2 (TO BA-5)
C7 0.01 200V
C8 100/16V (BP)
B/B-Y IN
C12 15P(CH)
C9 0.01
R3 15K (±1%) 1/6W
S3
B/B-Y
QB-3 (TO BA-6)
QB (RGB/ COMPONENT INPUT)

| GC BOARD | | |
|---|---|---|
| IC1 | uPC7972H | -12V REG |
| 2 | uPC7972H | -12V REG |
| 3 | uPC7812H | +12V REG |
| 4 | uPC7812H | +12V REG |


+12V
E
-12V
-150V
E
(TO BK-5) GC-3
+12V
+12V
E
-12V
-12V
(TO TB-17) GC-2
15.0V
C6 22 25V
C8 22 25V
IC4
C7 22 25V
IC3
C5 22 25V
C9 22 25V
C14 0.01
C16 0.01
12.0V
-12.0V
-12.0V
IC2
C3 22 25V
IC1
C1 22 25V
-150V
-15V
C2 22 25V
C4 22 25V
C12 0.01
C18 0.01
C17 0.01
-150V
E
+15V
E
-15V
GC-1 (TO TB-16)
GC (REG)


AUTO SET UP PROBE
R1 100
R2 100
R3 100
R4 100
R5 100
R6 100
R7 100
CP1
1
8
AUTO/ B&W
A/B
TALLY
INT/ EXT
REMOTE
VITC OFF
VITC HOLD
E
V-1
(TO TB-6)
(REMOTE)
V

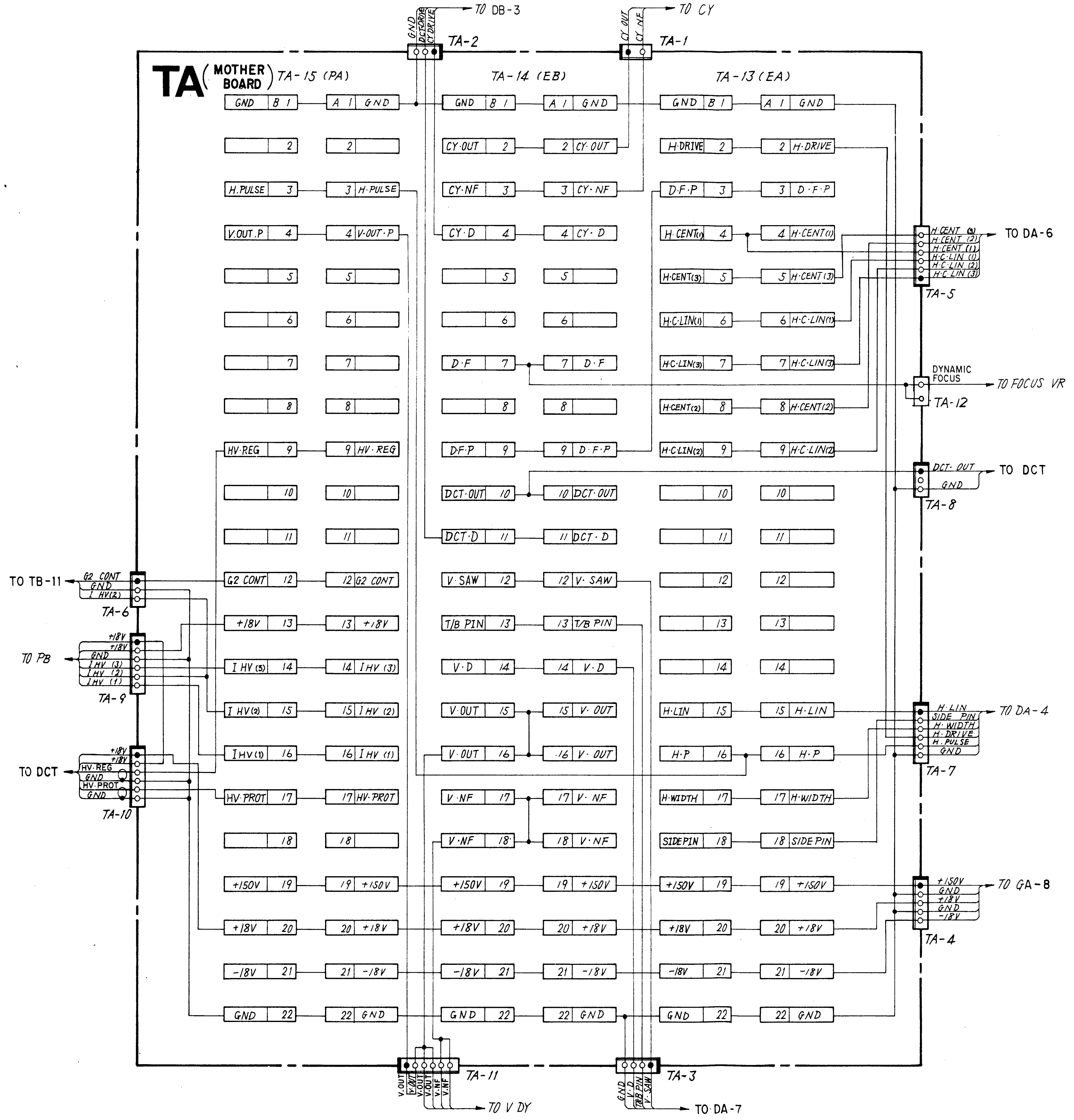
**TA board (MOTHER BOARD)**


TA-8
DCC OUT
V.OUT
PULSE
V.OUT
V.OUT
V.OUT
V.NF
V.NF
+18V
+18V
TA-11
TA-10
HV.REG
GND
HV.PROT
GND
+18V
+18V
TA-9
6
3
2
1
HV
1-617-898-12
1
5
DYNAMIC FOCUS
TA-12
TA-5
6
HCENT
HCENT
LIN
1
8
GND
H.PULSE
H.DRIVE
H.WIDTH
SIDE PIN
H.LIN
10
15
TA-1
CY.OUT
CY.NF
CY.DRIVE
DCT.DRIVE
GND
V.SAW
T&B PIN
V.D
GND
TA-2
TA-3
TA-6
I ABL
GND
G2 CONT
TA-4
+150V
SONY
TA
22
TA-14
EB
TA-15
PA
EA

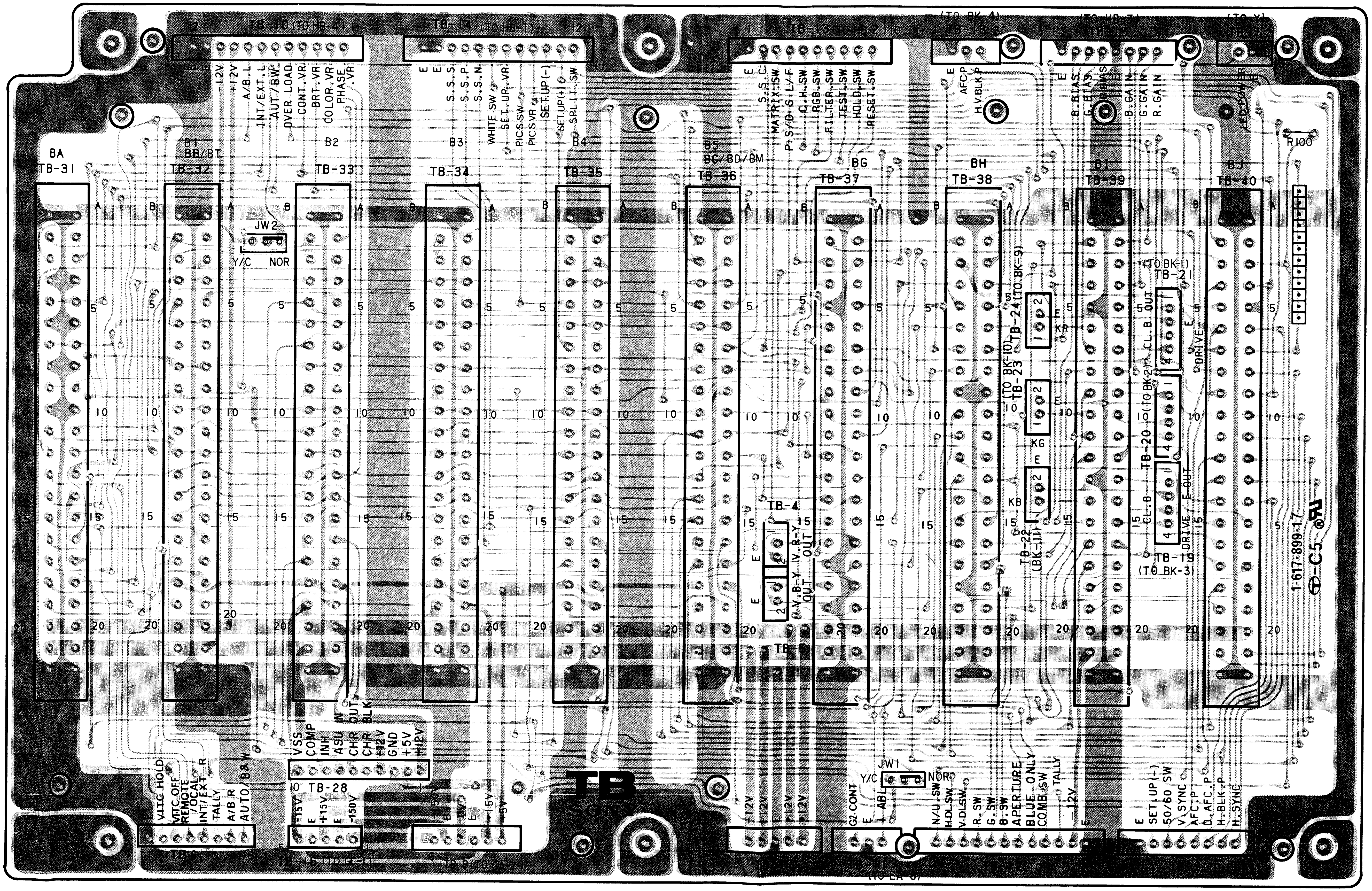
● ▨ : Conductor side pattern

● ▨ : Component side pattern

**TA board (MOTHER BOARD)**

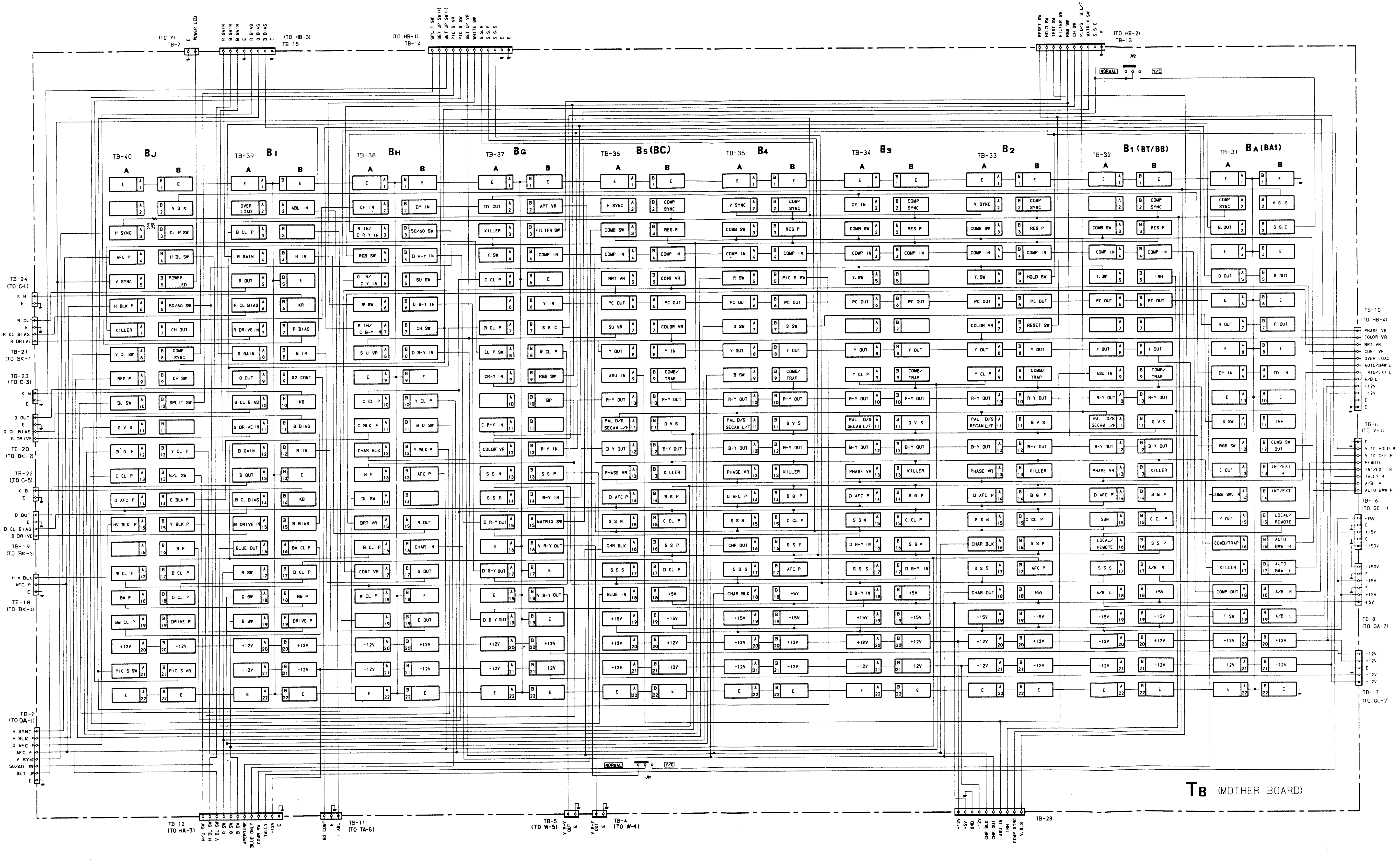

TA (MOTHER BOARD)
TA-15 (PA)
TA-14 (EB)
TA-13 (EA)
TA-2
TO DB-3
GND
DCT DRIVE
CY DRIVE
TA-1
TO CY
CY OUT
CY NF
GND B 1
A 1 GND
H.PULSE 3
3 H.PULSE
V.OUT.P 4
4 V.OUT.P
HV.REG 9
9 HV.REG
G2 CONT 12
12 G2 CONT
+18V 13
13 +18V
I HV(3) 14
14 I HV(3)
I HV(2) 15
15 I HV(2)
I HV(1) 16
16 I HV(1)
HV.PROT 17
17 HV.PROT
+150V 19
19 +150V
+18V 20
20 +18V
-18V 21
21 -18V
GND 22
22 GND
CY.OUT 2
2 CY.OUT
CY.NF 3
3 CY.NF
CY.D 4
4 CY.D
D.F 7
7 D.F
DF.P 9
9 D.F.P
DCT.OUT 10
10 DCT.OUT
DCT.D 11
11 DCT.D
V.SAW 12
12 V.SAW
T/B PIN 13
13 T/B PIN
V.D 14
14 V.D
V.OUT 15
15 V.OUT
V.OUT 16
16 V.OUT
V.NF 17
17 V.NF
V.NF 18
18 V.NF
H.DRIVE 2
2 H.DRIVE
D.F.P 3
3 D.F.P
H.CENT(1) 4
4 H.CENT(1)
H.CENT(3) 5
5 H.CENT(3)
H.C.LIN(1) 6
6 H.C.LIN(1)
H.C.LIN(3) 7
7 H.C.LIN(3)
H.CENT(2) 8
8 H.CENT(2)
H.C.LIN(2) 9
9 H.C.LIN(2)
H.LIN 15
15 H.LIN
H.P 16
16 H.P
H.WIDTH 17
17 H.WIDTH
SIDEPIN 18
18 SIDEPIN
H.CENT (3)
H.CENT (2)
H.CENT (1)
H.C.LIN (1)
H.C.LIN (2)
H.C.LIN (3)
TO DA-6
TA-5
DYNAMIC FOCUS
TO FOCUS VR
TA-12
DCT.OUT
GND
TO DCT
TA-8
H.LIN
SIDE PIN
H.WIDTH
H.DRIVE
H.PULSE
GND
TO DA-4
TA-7
+150V
GND
+18V
GND
-18V
TO GA-8
TA-4
TO TB-11
G2 CONT
GND
I HV(2)
TA-6
TO PB
+18V
+18V
GND
I HV (3)
I HV (2)
I HV (1)
TA-9
TO DCT
+18V
+18V
HV.REG
GND
HV.PROT
GND
TA-10
TA-11
V.OUT
V.OUT
V.OUT
V.NF
V.NF
TO V DY
TA-3
GND
V.D
T/B PIN
V.SAW
TO DA-7

## TB board (MOTHER BOARD)

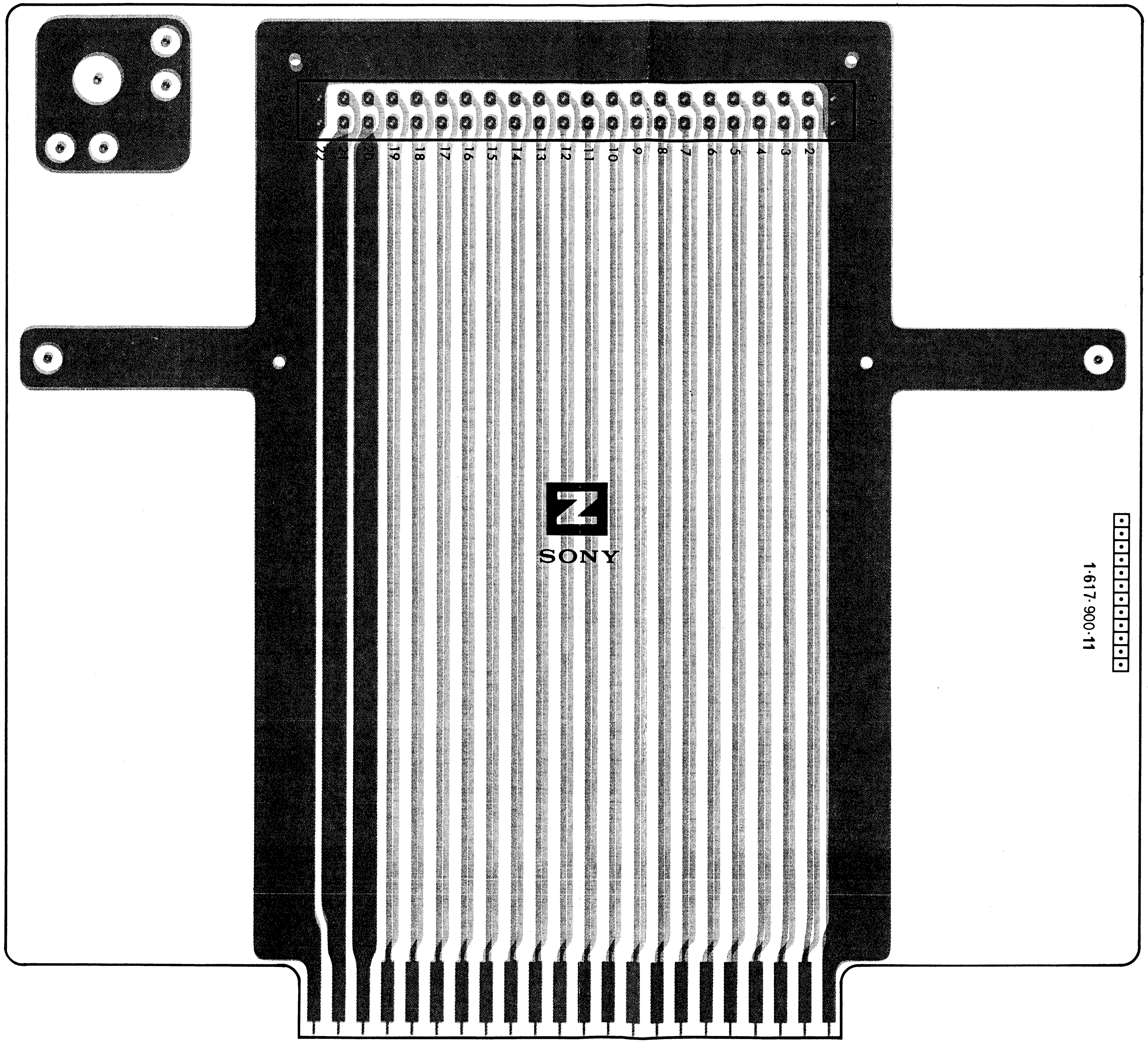

TB-10 (TO HB-4)
TB-14 (TO HB-1)
TB-13 (TO HB-2)
(TO BK-4) TB-18
(TO HB-3) TB-15
(TO X) TB-7
-12V
+12V
A/B.L
INT/EXT.L
AUT/BW
OVER LOAD
CONT.VR
BRT.VR
COLOR.VR
PHASE.VR
S.S.S
S.S.P
S.S.N
WHITE.SW
SET.UP.VR
PICS.SW
PICS.VR
SET.UP(-)
SETUP(+)
SPLIT.SW
S.S.C
MATRIX.SW
P.S/D.S.L/F
C.H.SW
RGB.SW
FILTER.SW
TEST.SW
HOLD.SW
RESET.SW
AFC.P
H.V.BLK.P
B.BIAS
G.BIAS
R.BIAS
B.GAIN
G.GAIN
R.GAIN
LED.POWER
R100
BA TB-31
B1 BB/BT TB-32
B2 TB-33
B3 TB-34
B4 TB-35
B5 BC/BD/BM TB-36
BG TB-37
BH TB-38
BI TB-39
BJ TB-40
JW2
Y/C
NOR
TB-4
V.B-Y OUT
V.R-Y OUT
TB-5
TB-24 (TO BK-9)
TB-23 (TO BK-10)
TB-22 (BK-11)
KR
KG
KB
(TO BK-1) TB-21
TB-20 (TO BK-2)
TB-19 (TO BK-3)
OUT
CL.B OUT
CL.B
DRIVE
E OUT
1-617-899-17
C5
VSS
COMP
INH
ASU
CHR IN
CHR OUT
CHR BLK
F12V
GND
+5V
+12V
TB-28
V.T.C HOLD
V.T.C OFF
REMOTE/LOCAL
INT/EXT.R
TALLY
A/B.R
AUTO.B&W
-15V
+15V
-150V
TB-16 (TO G-1)
TB-8 (TO GA-7)
+5V
TB
SONY
JW1
ABL
G2.CONT
N/U.SW
H.DL.SW
V.DL.SW
R.SW
G.SW
B.SW
APERTURE
BLUE ONLY
COMB.SW
TALLY
-12V
(TO LA-8)
SET.UP(-)
50/60 SW
V.SYNC
AFC.P
D.AFC.P
H.BLK.P
H.SYNC

- ▒ : Conductor side pattern
- ▒ : Component side pattern

## TB board (MOTHER BOARD)


(TO Y) TB-7
(TO HB-3) TB-15
(TO HB-1) TB-14
(TO HB-2) TB-13
NORMAL
T/C
TB-40 BJ
TB-39 BI
TB-38 BH
TB-37 BG
TB-36 B5 (BC)
TB-35 B4
TB-34 B3
TB-33 B2
TB-32 B1 (BT/BB)
TB-31 BA (BA1)
A
B
TB-24 (TO C-1)
TB-21 (TO BK-1)
TB-23 (TO C-3)
TB-20 (TO BK-2)
TB-22 (TO C-5)
TB-19 (TO BK-3)
TB-18 (TO BK-4)
TB-9 (TO DA-1)
TB-10 (TO HB-4)
TB-6 (TO V-1)
TB-16 (TO GC-1)
TB-8 (TO GA-7)
TB-17 (TO GC-2)
TB-12 (TO HA-3)
TB-11 (TO TA-6)
TB-5 (TO W-5)
TB-4 (TO W-4)
TB-28
JW1
JW2
TB (MOTHER BOARD)

**Z board (EXTENSION BOARD)**


B
A
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
22
SONY
1-617-900-11

- ● ▨: Conductor side pattern
- ● ▨: Component side pattern

## 5-4. SEMICONDUCTORS

The chart in this section may sometimes show diodes, transistors, and ICs that are not interchangeable. When replacing a component, be sure to refer to the parts list.
The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

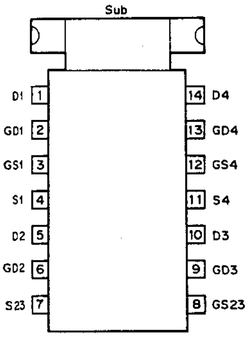
| TYPE | PAGE |
|---|---|
| 10E2 | 5-95 |
| 1S1555 | 5-95 |
| 1S2076 | 5-95 |
| 1S2835 | 5-95 |
| 1S2837 | 5-95 |
| 1S2838 | 5-95 |
| 1SS119 | 5-95 |
| 1SS133T | 5-95 |
| 1SS148 | 5-95 |
| 1SS83 | 5-95 |
| 1T25 | 5-95 |
| 2SA1048 | 5-94 |
| 2SA1091 | 5-94 |
| 2SA1115 | 5-94 |
| 2SA1142 | 5-94 |
| 2SA1156 | 5-94 |
| 2SA1175 | 5-94 |
| 2SA1226 | 5-94 |
| 2SA1406 | 5-94 |
| 2SA473 | 5-94 |
| 2SA844 | 5-94 |
| 2SA893A | 5-94 |
| 2SA933S | 5-94 |
| 2SA979 | 5-94 |
| 2SB734 | 5-94 |
| 2SB740 | 5-94 |
| 2SB858 | 5-94 |
| 2SB860 | 5-94 |
| 2SB861 | 5-94 |
| 2SC1173 | 5-94 |
| 2SC1475 | 5-94 |
| 2SC1740 | 5-94 |
| 2SC1890A | 5-94 |
| 2SC2230A | 5-94 |
| 2SC2458 | 5-94 |
| 2SC2551 | 5-94 |
| 2SC2555 | 5-94 |
| 2SC2603 | 5-94 |
| 2SC2668 | 5-94 |
| 2SC2688 | 5-94 |
| 2SC2752 | 5-94 |
| 2SC2757 | 5-94 |
| 2SC2785 | 5-94 |
| 2SC2878 | 5-94 |
| 2SC2910 | 5-94 |
| 2SC3068 | 5-94 |
| 2SC3327 | 5-94 |
| 2SC3524A | 5-94 |
| 2SC3600 | 5-94 |
| 2SC3624A | 5-94 |
| 2SC3675 | 5-94 |
| 2SC403SP | 5-94 |
| 2SD1134 | 5-94 |
| 2SD1137 | 5-94 |
| 2SD1556 | 5-95 |
| 2SD669A | 5-94 |
| 2SD774 | 5-94 |
| 2SD789 | 5-94 |
| 2SK381 | 5-95 |
| 2SK514 | 5-95 |
| 2SK523-K1 | 5-95 |
| 2SK523-K2 | 5-95 |
| 2SK523-L1 | 5-95 |
| BA4558 | 5-88 |
| CR02AM-4 | 5-95 |
| CR3CM-8 | 5-95 |
| CTU-38R | 5-95 |
| CTU-38S | 5-95 |
| CX-718D | 5-88 |
| CX158 | 5-88 |
| CX20061 | 5-88 |
| CX23025 | 5-88 |
| CX894 | 5-88 |
| CXA1539P | 5-88 |
| CXL1009P | 5-89 |
| DTA124ES | 5-94 |
| DTA144EK | 5-94 |
| DTA144ES | 5-94 |
| DTC124ES | 5-94 |
| DTC143TS | 5-94 |
| DTC144EK | 5-94 |
| DTC144ES | 5-94 |
| EQA02-06AV3 | 5-95 |
| EQA02-07DV3 | 5-95 |
| EQA02-08AV3 | 5-95 |
| EQA02-10BV3 | 5-95 |
| EQA02-11DV3 | 5-95 |
| EQA02-14BV3 | 5-95 |
| ERB81-004 | 5-95 |
| ERC24-04S | 5-95 |
| ERC24-06S | 5-95 |
| ERD28-04S | 5-95 |
| ESAC25-04C | 5-95 |
| ESAC25-04N | 5-95 |
| ESAC31-02D | 5-95 |
| ESAD25-04D | 5-95 |
| GP08D | 5-95 |
| HA17558 | 5-88 |
| HD14001BP | 5-89 |
| HD14011BP | 5-89 |
| HD14023BP | 5-89 |
| HD14027BP | 5-89 |
| HD14040BP | 5-89 |
| HD14053BP | 5-90 |
| HD14066BP | 5-90 |
| HD14069UBP | 5-90 |
| HD14071BP | 5-90 |
| HD14073BP | 5-90 |
| HD14081BP | 5-90 |
| HD14093BP | 5-90 |
| HD14175BP | 5-90 |
| HD14520BP | 5-91 |
| HD14538BP | 5-91 |
| HZ10EB3 | 5-95 |
| HZ12A2L | 5-95 |
| HZ12EB1 | 5-95 |
| HZ12EB2 | 5-95 |
| HZ12EB3 | 5-95 |
| HZ15EB3 | 5-95 |
| HZ3.0EB1 | 5-95 |
| HZ3.0EB2 | 5-95 |
| HZ3.9EB2 | 5-95 |
| HZ4.3EB1 | 5-95 |
| HZ4.3EB2 | 5-95 |
| HZ4.3EB3 | 5-95 |
| HZ5.6EB2 | 5-95 |
| HZ6.2EB1 | 5-95 |
| HZ6.2EB2 | 5-95 |
| HZ6.2EB3 | 5-95 |
| HZ7.5EB2 | 5-95 |
| HZ7.5EB3 | 5-95 |
| HZ9.1EB1 | 5-95 |
| HZ9.1EB2 | 5-95 |
| HZ9.1EB3 | 5-95 |
| HZT33-02 | 5-95 |
| LA7016 | 5-91 |
| LT-9220H | 5-95 |
| M5218L | 5-91 |
| M5F7805 | 5-91 |
| M5F7809 | 5-91 |
| MB84011B | 5-89 |
| MB84027B | 5-91 |
| MB84053B | 5-90 |
| MB84066B | 5-90 |
| MC14001BCP | 5-89 |
| MC14011BCP | 5-89 |
| MC14023BCP | 5-89 |
| MC14027BCP | 5-89 |
| MC14040BCP | 5-89 |
| MC14053BCP | 5-90 |
| MC14069BCP | 5-90 |
| MC14071BCP | 5-90 |
| MC14073BCP | 5-90 |
| MC14081BCP | 5-90 |
| MC14175BCP | 5-90 |
| MC14520BCP | 5-91 |
| MC1496P | 5-91 |
| MC911 | 5-95 |
| MC921 | 5-95 |
| MC931 | 5-95 |
| NJM2903D | 5-92 |
| NJM4558D | 5-88 |
| NJM4558S | 5-92 |
| NJM7805FA | 5-92 |
| NJM7809FA | 5-92 |
| NJM7812A | 5-92 |
| NJM7812B | 5-92 |
| NJM78M12A | 5-92 |
| NJM7912A | 5-92 |
| NJM79M12A | 5-92 |
| RB406NH | 5-95 |
| RC7805FA | 5-92 |
| RC7809FA | 5-92 |
| RD10EB3 | 5-95 |
| RD12EB1 | 5-95 |
| RD12EB2 | 5-95 |
| RD12EB3 | 5-95 |
| RD15EB3 | 5-95 |
| RD3.0EB1 | 5-95 |
| RD3.0EB2 | 5-95 |
| RD3.0ES-B | 5-95 |
| RD3.9EB2 | 5-95 |
| RD4.3EB1 | 5-95 |
| RD4.3EB2 | 5-95 |
| RD4.3EB3 | 5-95 |
| RD4.7EL1 | 5-95 |
| RD4.7EL2 | 5-95 |
| RD4.7EL3 | 5-95 |
| RD5.6EB2 | 5-95 |
| RD5.6M-B2 | 5-95 |
| RD6.2EB1 | 5-95 |
| RD6.2EB2 | 5-95 |
| RD6.2EB3 | 5-95 |
| RD7.5EB3 | 5-95 |
| RD8.2ES-B2 | 5-95 |
| RD9.1EB1 | 5-95 |
| RD9.1EB2 | 5-95 |
| RD9.1EB3 | 5-95 |
| RH-1 | 5-95 |
| RU-1A | 5-95 |
| S3WB60Z | 5-96 |
| SIB01-02 | 5-95 |
| STR8124 | 5-92 |
| TA7193P | 5-93 |
| TC4001BP | 5-89 |
| TC4011BP | 5-89 |
| TC40175BP | 5-90 |
| TC4023BP | 5-89 |
| TC4030BP | 5-93 |
| TC4040BP | 5-89 |
| TC4053BP | 5-90 |
| TC4066BP | 5-90 |
| TC4069UBP | 5-90 |
| TC4071BP | 5-90 |
| TC4073BP | 5-90 |
| TC4081BP | 5-90 |
| TC4093BP | 5-90 |
| TC4520BP | 5-91 |

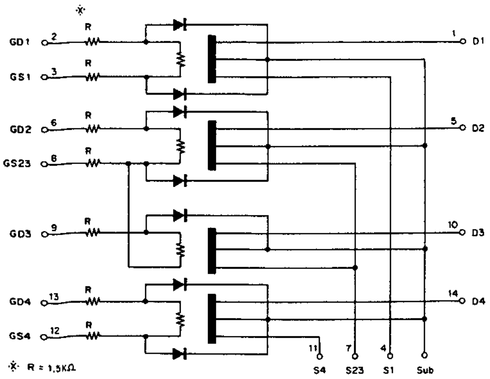
| TYPE | PAGE |
|---|---|
| TC4538BP | 5-91 |
| TC504027BP | 5-91 |
| TL082CP | 5-93 |
| TL494CN | 5-93 |
| TL8608P | 5-93 |
| TLG124A | 5-96 |
| TLO124 | 5-96 |
| TLR124 | 5-96 |
| TLY124 | 5-96 |
| TX429M | 5-93 |
| U05G | 5-96 |
| uPC1394C | 5-94 |
| uPC4082C | 5-93 |
| uPC4558C | 5-88 |
| uPC574J | 5-94 |
| UPC7812H | 5-92 |
| uPC78M12H | 5-94 |
| uPC7912H | 5-92 |
| uPD4001BC | 5-89 |
| uPD4011BC | 5-89 |
| uPD4023BC | 5-89 |
| uPD4027BC | 5-89 |
| uPD4030BC | 5-93 |
| uPD4040BC | 5-89 |
| uPD4053BC | 5-90 |
| uPD4066BC | 5-90 |
| uPD4069UBC | 5-90 |
| uPD4071BC | 5-90 |
| uPD4073BC | 5-90 |
| uPD4081BC | 5-90 |
| uPD4175BC | 5-90 |
| uPD4538BC | 5-91 |
| V11N | 5-96 |

CX-718D (SONY)

SRG FET IC

- TOP VIEW -

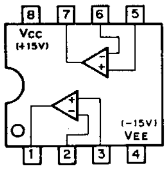

Sub
D1 1
GD1 2
GS1 3
S1 4
D2 5
GD2 6
S23 7
14 D4
13 GD4
12 GS4
11 S4
10 D3
9 GD3
8 GS23


※
R
GD1 2
GS1 3
GD2 6
GS23 8
GD3 9
GD4 13
GS4 12
1 D1
5 D2
10 D3
14 D4
11 S4
7 S23
4 S1
Sub
※ R = 1.5KΩ

BA4558 (ROHM)
HA17558 (HITACHI)
NJM4558D (JRC)
uPC4558C (NEC)

OPERATIONAL AMPLIFIER

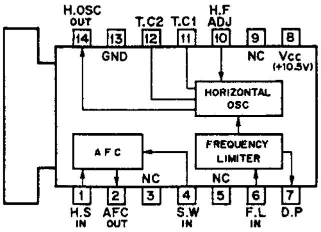
- TOP VIEW -


8 7 6 5
Vcc (+15V)
(−15V) VEE
1 2 3 4

CX158 (SONY)

HORIZONTAL DEFLECTION OSCILLATOR/FREQUENCY LIMITER

- TOP VIEW -

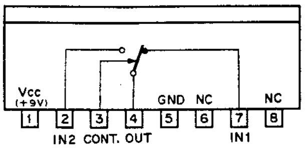

H.OSC OUT
T.C2
T.C1
H.F ADJ
14 13 12 11 10 9 8
GND
NC
Vcc (+10.5V)
HORIZONTAL OSC
AFC
FREQUENCY LIMITER
NC
NC
1 2 3 4 5 6 7
H.S IN
AFC OUT
S.W IN
F.L IN
D.P

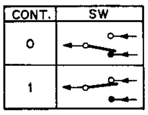
D.P ; DISCHARGE PROTECTION
F.L IN ; FREQUENCY LIMITTER IN
H.F ADJ ; HORIZONTAL FREQUENCY ADJ
H.OSC OUT ; HORIZONTAL OSCILLATOR OUT
H.S IN ; HORIZONTAL SYNC IN
S.W IN ; SAW WAVE IN
T.C 1/2 ; TIME CONSTANT 1/2

CX20061 (SONY)

ANALOG SWITCH

- SIDE VIEW -


Vcc (+9V)
GND
NC
NC
1 2 3 4 5 6 7 8
IN2 CONT. OUT
IN1

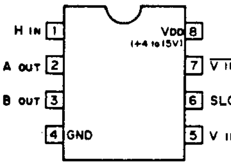


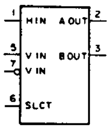
0 ; LOW LEVEL
1 ; HIGH LEVEL

CX23025 (SONY)

C-MOS TV·VTR SYNC SIGNAL DISCRIMINATOR

— TOP VIEW —


H IN 1
A OUT 2
B OUT 3
4 GND
VDD 8
(+4 to 15V)
7 $\overline{\text{V IN}}$
6 SLCT
5 V IN


1 H IN
A OUT 2
5 V IN
B OUT 3
7 V IN
6 SLCT

A OUT ; SYNC SIGNAL DISCRIMINATION OUTPUT
B OUT ; SYNC SIGNAL DISCRIMINATION OUTPUT
H IN HORIZONTAL SYNC INPUT
SLCT ; POWER ON INITIALIZED SELECT INPUT
V IN ; VERTICAL SYNC INPUT
$\overline{\text{V IN}}$ ; VERTICAL SYNC INPUT

POWER ON INITIALIZED

| SLCT INPUT | A OUTPUT | B OUTPUT |
|---|---|---|
| 1 | 0 | 1 |
| 0 | 1 | 0 |

DISCRIMINATION

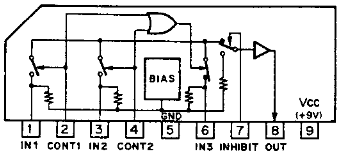
| V SYNC INPUT FREQUENCY | OUTPUTS | |
|---|---|---|
| | A | B |
| 50Hz | 0 | 1 |
| 60Hz | 1 | 0 |

0 ; LOW LEVEL
1 ; HIGH LEVEL

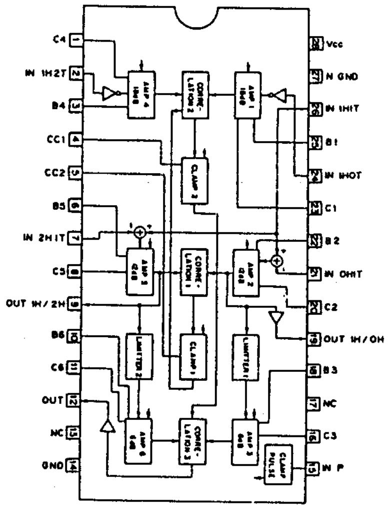
CX894 (SONY)

3 INPUT SWITCH

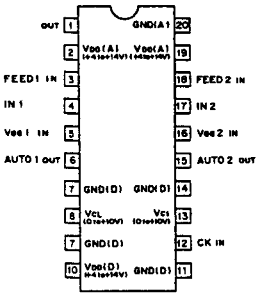
- SIDE VIEW -


BIAS
GND
Vcc (+9V)
1 2 3 4 5 6 7 8 9
IN1 CONT1 IN2 CONT2
IN3 INHIBIT OUT

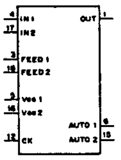
CXA1539P (SONY)


C4 1
IN 1H2T 2
B4 3
CC1 4
CC2 5
B5 6
IN 2HIT 7
C5 8
OUT 1H/2H 9
B6 10
C6 11
OUT 12
NC 13
GND 14
28 Vcc
27 N GND
26 IN 1HIT
25 B1
24 IN 1HOT
23 C1
22 B2
21 IN 0HIT
20 C2
19 OUT 1H/0H
18 B3
17 NC
16 C3
15 IN P
AMP 4
CORRE-LATION 2
AMP 1
CLAMP 2
AMP 5
CORRE-LATION 1
AMP 2
LIMITER 2
CLAMP 1
LIMITER 1
AMP 6
CORRE-LATION 3
AMP 3
CLAMP PULSE

## CXL1009P (SONY)
C-MOS CCD SIGNAL PROCESSOR FOR TBC
— TOP VIEW —

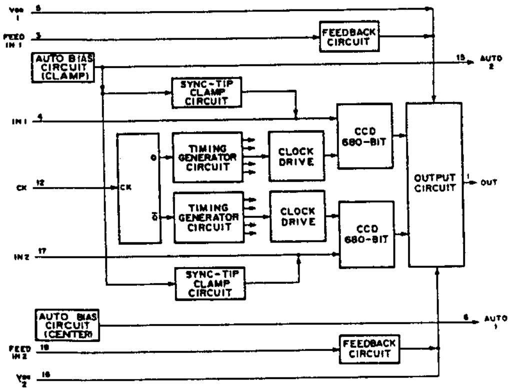


OUT 1
GND(A) 20
2 VDD(A) (+4to+14V)
VDD(A) (+4to+14V) 19
FEED1 IN 3
18 FEED2 IN
IN1 4
17 IN2
VGG1 IN 5
16 VGG2 IN
AUTO1 OUT 6
15 AUTO2 OUT
7 GND(D)
GND(D) 14
8 VCL (0to+10V)
VCL (0to+10V) 13
7 GND(D)
12 CK IN
10 VDD(D) (+4to+14V)
GND(D) 11



4 IN1
17 IN2
3 FEED1
18 FEED2
5 VGG1
16 VGG2
12 CK
OUT 1
AUTO1 6
AUTO2 15

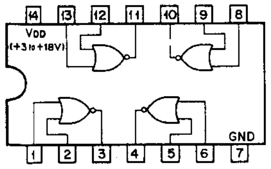
| | |
|---|---|
| OUT | ; OUT PUT |
| FEED 1/2 IN | ; FEEDBACK INPUT 1/2 |
| IN 1/2 | ; INPUT 1/2 |
| VGG 1/2 IN | ; GATE INPUT 1/2 |
| AUTO 1/2 OUT | ; AUTO BIAS OUTPUT 1/2 |
| CK IN | ; CLOCK INPUT |
| VCL | ; POWER SUPPLY 2(DIGITAL) |
| VDD(A)/(D) | ; POWER SUPPLY 1(ANALOG)/(DIGITAL) |
| GND(A)/(D) | ; GROUND(ANALOG)/(DIGITAL) |



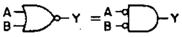
VGG1 5
FEED IN1 3
AUTO BIAS CIRCUIT (CLAMP)
FEEDBACK CIRCUIT
15 AUTO 2
SYNC-TIP CLAMP CIRCUIT
IN1 4
CCD 680-BIT
TIMING GENERATOR CIRCUIT
CLOCK DRIVE
CK 12
CK
Q
OUTPUT CIRCUIT
1 OUT
TIMING GENERATOR CIRCUIT
CLOCK DRIVE
CCD 680-BIT
IN2 17
SYNC-TIP CLAMP CIRCUIT
AUTO BIAS CIRCUIT (CENTER)
6 AUTO 1
FEEDBACK CIRCUIT
FEED IN2 18
VGG2 16

## HD14001BP (HITACHI)
MC14001BCP (MOTOROLA)
TC4001BP (TOSHIBA)
uPD4001BC (NEC)

C-MOS 2-INPUT NOR GATE
- TOP VIEW -



14 13 12 11 10 9 8
VDD (+3to+18V)
GND
1 2 3 4 5 6 7



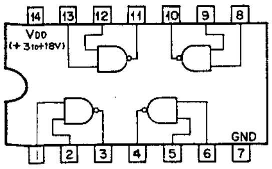
$Y = \overline{A+B} = \overline{A}\cdot\overline{B}$

| A | B | Y |
|---|---|---|
| 0 | 0 | 1 |
| 0 | 1 | 0 |
| 1 | 0 | 0 |
| 1 | 1 | 0 |

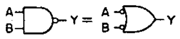
0; LOW LEVEL
1; HIGH LEVEL

## HD14011BP (HITACHI)
MB84011B (FUJITSU)
MC14011BCP (MOTOROLA)
TC4011BP (TOSHIBA)
uPD4011BC (NEC)

C-MOS 2-INPUT NAND GATE
- TOP VIEW -



14 13 12 11 10 9 8
VDD (+3to+18V)
GND
1 2 3 4 5 6 7

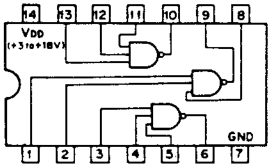


$Y = \overline{A\cdot B} = \overline{A}+\overline{B}$

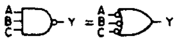
| A | B | Y |
|---|---|---|
| 0 | 0 | 1 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |

0:LOW LEVEL
1:HIGH LEVEL

## HD14023BP
MC14023BCP (MOTOROLA)
TC4023BP (TOSHIBA)
uPD4023BC (NEC)
C-MOS 3-INPUT NAND GATE
— TOP VIEW —



14 13 12 11 10 9 8
VDD (+3to+18V)
GND
1 2 3 4 5 6 7



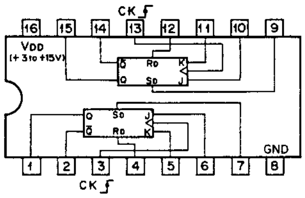
$Y = \overline{A\cdot B\cdot C} = \overline{A}+\overline{B}+\overline{C}$

| A | B | C | Y |
|---|---|---|---|
| X | X | 0 | 1 |
| X | 0 | X | 1 |
| 0 | X | X | 1 |
| 1 | 1 | 1 | 0 |

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

## HD14027BP (HITACHI)
MC14027BCP (MOTOROLA)
uPD4027BC (NEC)

C-MOS J-K MASTER SLAVE FLIP-FLOP WITH DIRECT SET/RESET
- TOP VIEW -



CK
16 15 14 13 12 11 10 9
VDD (+3to+15V)
Q
Q̄
RD
SD
K
J
GND
1 2 3 4 5 6 7 8
CK

DIRECT R-S FLIP FLOP

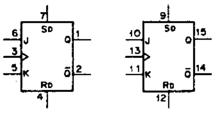
| SD | RD | Q |
|---|---|---|
| 0 | 0 | Qn |
| 0 | 1 | 0 |
| 1 | 0 | 1 |
| 1 | 1 | 1 |

0; LOW LEVEL
1 ; HIGH LEVEL

J-K FLIP FLOP

| tn | | tn+1 |
|---|---|---|
| J | K | Q |
| 0 | 0 | Qn |
| 0 | 1 | 0 |
| 1 | 0 | 1 |
| 1 | 1 | $\overline{Qn}$ |

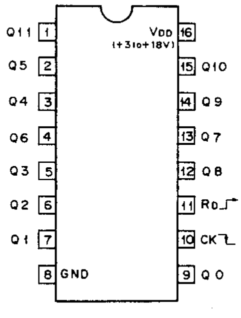
CK;
tn; BEFORE CLOCK
tn+1; AFTER CLOCK



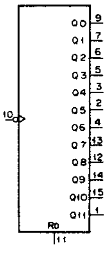
7
6 J
3
5 K
SD
RD
4
Q 1
Q̄ 2
9
10 J
13
11 K
SD
RD
12
Q 15
Q̄ 14

## HD14040BP (HITACHI)
MC14040BCP (MOTOROLA)
TC4040BP (TOSHIBA)
uPD4040BC (NEC)

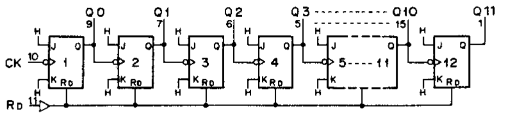
C-MOS 12-STAGE RIPPLE CARRY BINARY COUNTER/DRIVER
- TOP VIEW -



Q11 1
Q5 2
Q4 3
Q6 4
Q3 5
Q2 6
Q1 7
8 GND
VDD (+3to+18V) 16
15 Q10
14 Q9
13 Q7
12 Q8
11 RD
10 CK
9 Q0



10
Q0 9
Q1 7
Q2 6
Q3 5
Q4 3
Q5 2
Q6 4
Q7 13
Q8 12
Q9 14
Q10 15
Q11 1
RD 11



Q0 9
Q1 7
Q2 6
Q3 5
Q10 15
Q11 1
H
J Q
K RD
CK 10
1
2
3
4
5----11
12
RD 11

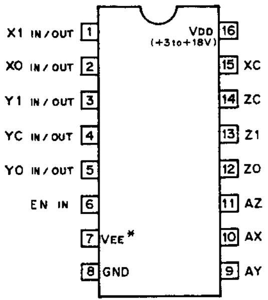
| COUNT | Q11 | Q10 | Q9 | Q8 | Q7 | Q6 | Q5 | Q4 | Q3 | Q2 | Q1 | Q0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 4095 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

| RD | Q11--------Q0 |
|---|---|
| 1 | ALL LOW |
| 0 | COUNT |

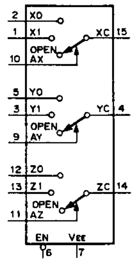
0; LOW LEVEL
1; HIGH LEVEL

HD14053BP (HITACHI)
MB84053B (FUJITSU)
MC14053BCP (MOTOROLA)
TC4053BP (TOSHIBA)
uPD4053BC (NEC)

C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXER/DEMULTIPLEXER
– TOP VIEW –


X1 IN/OUT 1
X0 IN/OUT 2
Y1 IN/OUT 3
YC IN/OUT 4
Y0 IN/OUT 5
EN IN 6
7 VEE*
8 GND
VDD (+3 to +18V) 16
15 XC IN/OUT
14 ZC IN/OUT
13 Z1 IN/OUT
12 Z0 IN/OUT
11 AZ IN/OUT
10 AX IN/OUT
9 AY IN/OUT

VEE*; VDD–VEE = +3 to +18V

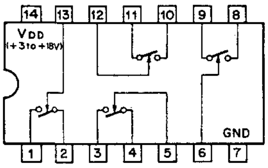

2 X0
1 X1
XC 15
10 OPEN AX
5 Y0
3 Y1
YC 4
9 OPEN AY
12 Z0
13 Z1
ZC 14
11 OPEN AZ
EN 6
VEE 7

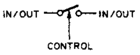
| CONT. INPUTS | | ON CHANNEL |
|---|---|---|
| EN | A (X,Y,Z,) | |
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | X | OPEN |

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE.

HD14066BP (HITACHI)
MB84066B (FUJITSU)
TC4066BP (TOSHIBA)
uPD4066BC (NEC)

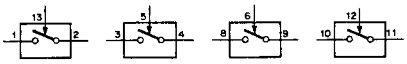
C-MOS BILATERAL ANALOG SWITCH
– TOP VIEW –


14 13 12 11 10 9 8
VDD (+3 to +18V)
GND
1 2 3 4 5 6 7


IN/OUT
IN/OUT
CONTROL

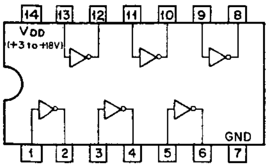
| CONTROL | SWITCH |
|---|---|
| 0 | OFF |
| 1 | ON |

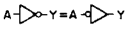
0; LOW LEVEL
1; HIGH LEVEL


13
1
2
5
3
4
6
8
9
12
10
11

HD14069UBP (HITACHI)
MC14069BCP (MOTOROLA)
TC4069UBP (TOSHIBA)
uPD4069UBC (NEC)

C-MOS INVERTER
– TOP VIEW –


14 13 12 11 10 9 8
VDD (+3 to +18V)
GND
1 2 3 4 5 6 7



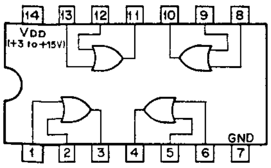
Y = $\overline{A}$

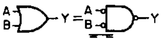
| A | Y |
|---|---|
| 0 | 1 |
| 1 | 0 |

0; LOW LEVEL
1; HIGH LEVEL

HD14071BP (HITACHI)
MC14071BCP (MOTOROLA)
TC4071BP (TOSHIBA)
uPD4071BC (NEC)

C-MOS 2-INPUT OR GATE
– TOP VIEW –


14 13 12 11 10 9 8
VDD (+3 to +15V)
GND
1 2 3 4 5 6 7



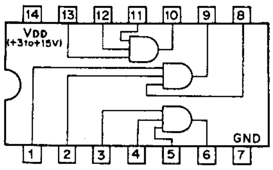
Y = A + B = $\overline{\overline{A}\cdot\overline{B}}$

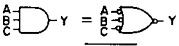
| A | B | Y |
|---|---|---|
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 1 |

0; LOW LEVEL
1; HIGH LEVEL

HD14073BP (HITACHI)
MC14073BCP (MOTOROLA)
TC4073BP (TOSHIBA)
uPD4073BC (NEC)

C-MOS 3-INPUT POSITIVE AND GATE
– TOP VIEW –


14 13 12 11 10 9 8
VDD (+3 to +15V)
GND
1 2 3 4 5 6 7



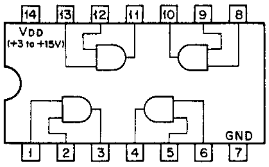
Y = A·B·C = $\overline{\overline{A}+\overline{B}+\overline{C}}$

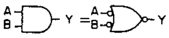
| A | B | C | Y |
|---|---|---|---|
| X | X | 0 | 0 |
| X | 0 | X | 0 |
| 0 | X | X | 0 |
| 1 | 1 | 1 | 1 |

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

HD14081BP (HITACHI)
MC14081BCP (MOTOROLA)
TC4081BP (TOSHIBA)
uPD4081BC (NEC)

C-MOS 2-INPUT AND GATE
– TOP VIEW –


14 13 12 11 10 9 8
VDD (+3 to +15V)
GND
1 2 3 4 5 6 7



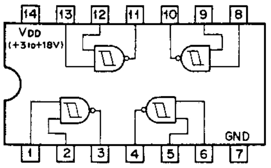
Y = A·B = $\overline{\overline{A}+\overline{B}}$

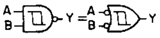
| A | B | Y |
|---|---|---|
| 0 | 0 | 0 |
| 0 | 1 | 0 |
| 1 | 0 | 0 |
| 1 | 1 | 1 |

0; LOW LEVEL
1; HIGH LEVEL

HD14093BP (HITACHI)
TC4093BP (TOSHIBA)

C-MOS 2-INPUT NAND SCHMITT TRIGGER
– TOP VIEW –

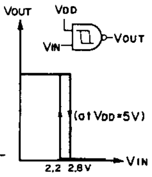

14 13 12 11 10 9 8
VDD (+3 to +18V)
GND
1 2 3 4 5 6 7



Y = $\overline{A\cdot B}$ = $\overline{A}+\overline{B}$

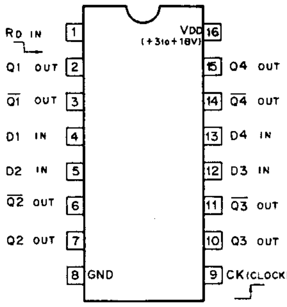
| A | B | Y |
|---|---|---|
| 0 | 0 | 1 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |

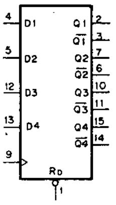
0; LOW LEVEL
1; HIGH LEVEL



HD14175BP (HITACHI)
MC14175BCP (MOTOROLA)
TC40175BP (TOSHIBA)
uPD4175BC (NEC)

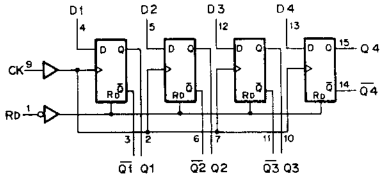
C-MOS D-TYPE FLIP-FLOP
– TOP VIEW –


RD IN 1
Q1 OUT 2
Q̄1 OUT 3
D1 IN 4
D2 IN 5
Q̄2 OUT 6
Q2 OUT 7
8 GND
VDD (+3 to +18V) 16
15 Q4 OUT
14 Q̄4 OUT
13 D4 IN
12 D3 IN
11 Q̄3 OUT
10 Q3 OUT
9 CK (CLOCK) IN


4 D1
5 D2
12 D3
13 D4
9
RD
1
Q1 2
Q̄1 3
Q2 7
Q̄2 6
Q3 10
Q̄3 11
Q4 15
Q̄4 14

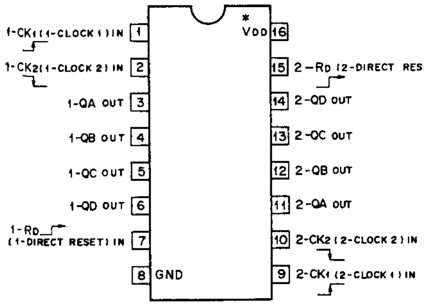
| CK | D | RD | Q | $\overline{Q}$ |
|---|---|---|---|---|
| _⌐ | 0 | 1 | 0 | 1 |
| _⌐ | 1 | 1 | 1 | 0 |
| ¬_ | X | 1 | $Q_0$ | $\overline{Q}_0$ |
| X | X | 0 | 0 | 1 |

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE


D1
D2
D3
D4
4
5
12
13
CK 9
RD 1
D Q
RD
Q̄
15 Q4
14 Q̄4
3 2
6 7
11 10
Q̄1 Q1
Q̄2 Q2
Q̄3 Q3

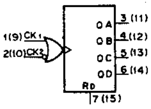
HD14520BP (HITACHI)
MC14520BCP (MOTOROLA)
TC4520BP (TOSHIBA)

C-MOS DUAL 4-BIT BINARY UP COUNTER
– TOP VIEW –


1-CK1 (1-CLOCK 1) IN 1
1-CK2 (1-CLOCK 2) IN 2
1-QA OUT 3
1-QB OUT 4
1-QC OUT 5
1-QD OUT 6
1-RD (1-DIRECT RESET) IN 7
8 GND
* VDD 16
15 2-RD (2-DIRECT RESET) IN
14 2-QD OUT
13 2-QC OUT
12 2-QB OUT
11 2-QA OUT
10 2-CK2 (2-CLOCK 2) IN
9 2-CK1 (2-CLOCK 1) IN

| STATE | OUTPUTS | | | |
|---|---|---|---|---|
| | QD | QC | QB | QA |
| 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 0 | 0 | 1 |
| 2 | 0 | 0 | 1 | 0 |
| 3 | 0 | 0 | 1 | 1 |
| 4 | 0 | 1 | 0 | 0 |
| 5 | 0 | 1 | 0 | 1 |
| 6 | 0 | 1 | 1 | 0 |
| 7 | 0 | 1 | 1 | 1 |
| 8 | 1 | 0 | 0 | 0 |
| 9 | 1 | 0 | 0 | 1 |
| 10 | 1 | 0 | 1 | 0 |
| 11 | 1 | 0 | 1 | 1 |
| 12 | 1 | 1 | 0 | 0 |
| 13 | 1 | 1 | 0 | 1 |
| 14 | 1 | 1 | 1 | 0 |
| 15 | 1 | 1 | 1 | 1 |

0;LOW LEVEL
1;HIGH LEVEL
X;DON'T CARE


1(9) CK1
2(10) CK2
QA 3(11)
QB 4(12)
QC 5(13)
QD 6(14)
RD
7(15)

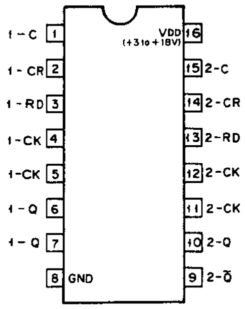
*

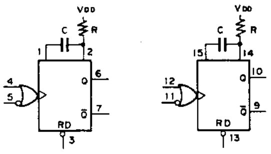
| TYPE | VDD |
|---|---|
| HC4520 | +2 to +6V |
| 14520, 4520, 84520 | +3 to +18V |

| CK1 | CK2 | RD | ACTION |
|---|---|---|---|
| ↑ | 1 | 0 | INCREMENT COUNTER |
| 0 | ↓ | 0 | INCREMENT COUNTER |
| ↓ | X | 0 | NO CHANGE |
| X | ↑ | 0 | NO CHANGE |
| ↑ | 0 | 0 | NO CHANGE |
| 1 | ↓ | 0 | NO CHANGE |
| X | X | 1 | QA THRU QD = 0 |

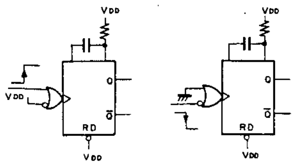
HD14538BP (HITACHI)
TC4538BP (TOSHIBA)
uPD4538BC (NEC)

C-MOS DUAL RETRIGGERABLE MONOSTABLE MULTIVIBRATOR
– TOP VIEW –

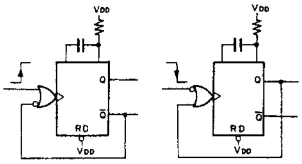

1-C 1
1-CR 2
1-RD 3
1-CK 4
1-CK 5
1-Q 6
1-Q 7
8 GND
VDD (+3 to +18V) 16
15 2-C
14 2-CR
13 2-RD
12 2-CK
11 2-CK
10 2-Q
9 2-Q̄


VDD
C
R
1
2
4
5
Q 6
Q̄ 7
RD
3
VDD
C
R
15
14
12
11
Q 10
Q̄ 9
RD
13

OUTPUT PULSE WIDTH = C·R

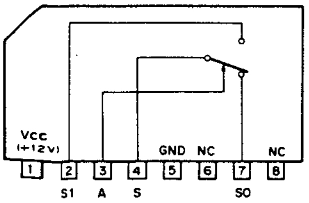

VDD
VDD
Q
Q̄
RD
VDD
VDD
Q
Q̄
RD
VDD

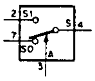
RETRIGGERABLE M.M.V


VDD
Q
Q̄
RD
VDD
VDD
Q
Q̄
RD
VDD

NON-RETRIGGERABLE M.M.V

LA7016 (SANYO)
ELECTRONIC SWITCH
— SIDE VIEW —


Vcc (+12V)
GND
NC
NC
1
2
3
4
5
6
7
8
S1
A
S
SO

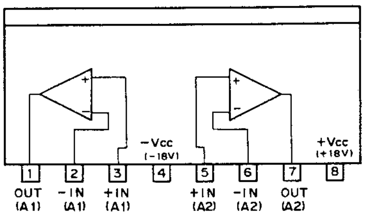

2 S1
7 SO
5
4
A
3

| CONT IN A | ON CHANNEL |
|---|---|
| 0 | SO |
| 1 | S1 |

0 ; LOW LEVEL
1 ; HIGH LEVEL

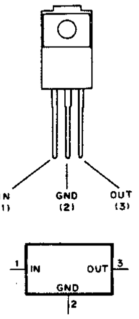
M5218L (MITSUBISHI)

LOW NOISE DUAL OPERATIONAL AMPLIFIER
– SIDE VIEW –


−Vcc (−18V)
+Vcc (+18V)
1 OUT (A1)
2 −IN (A1)
3 +IN (A1)
4
5 +IN (A2)
6 −IN (A2)
7 OUT (A2)
8

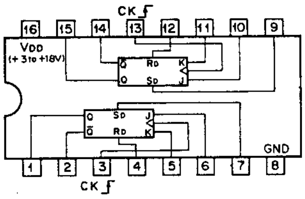
M5F7805 (MITSUBISHI) +5V
M5F7809 (MITSUBISHI) +9V

POSITIVE VOLTAGE REGULATOR (1A)
– PRINTED SIDE VIEW –


IN (1)
GND (2)
OUT (3)
1 IN
OUT 3
GND
2

MB84027B (FUJITSU)
TC504027BP (TOSHIBA)

C-MOS J-K MASTER SLAVE FLIP-FLOP WITH DIRECT SET/RESET
– TOP VIEW –


CK
16
15
14
13
12
11
10
9
VDD (+3 to +18V)
Q̄
RD
K
Q
SD
J
Q
SD
J
Q̄
RD
K
GND
1
2
3
4
5
6
7
8
CK

DIRECT R-S
FLIP FLOP

| SD | RD | Q |
|---|---|---|
| 0 | 0 | Qn |
| 0 | 1 | 0 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |

0 ; LOW LEVEL
1 ; HIGH LEVEL

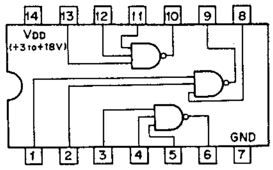
J-K
FLIP FLOP

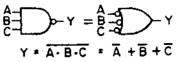
| tn | | tn+1 |
|---|---|---|
| J | K | Q |
| 0 | 0 | Qn |
| 0 | 1 | 0 |
| 1 | 0 | 1 |
| 1 | 1 | $\overline{Qn}$ |

CK; ↑
tn; BEFORE CLOCK
tn+1; AFTER CLOCK

MC14023BCP (MOTOROLA)
TC4023BP (TOSHIBA)
uPD4023BC (NEC)

C-MOS 3-INPUT NAND GATE
– TOP VIEW –


14
13
12
11
10
9
8
VDD (+3 to +18V)
GND
1
2
3
4
5
6
7



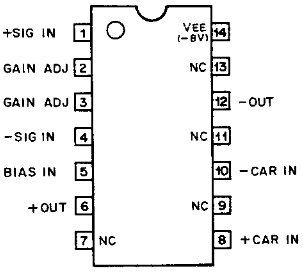
$Y = \overline{A \cdot B \cdot C} = \overline{A} + \overline{B} + \overline{C}$

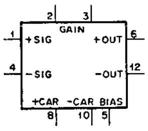
| A | B | C | Y |
|---|---|---|---|
| X | X | 0 | 1 |
| X | 0 | X | 1 |
| 0 | X | X | 1 |
| 1 | 1 | 1 | 0 |

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

MC1496P (MOTOROLA)

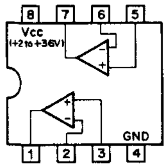
BALANCED MODULATOR/DEMODULATOR
– TOP VIEW –


+SIG IN 1
GAIN ADJ 2
GAIN ADJ 3
−SIG IN 4
BIAS IN 5
+OUT 6
7 NC
VEE (−8V) 14
NC 13
12 −OUT
NC 11
10 −CAR IN
NC 9
8 +CAR IN


2
3
GAIN
1 +SIG
+OUT 6
4 −SIG
−OUT 12
+CAR
−CAR
BIAS
8
10
5

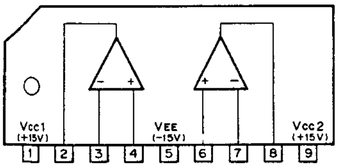
NJM2903D (JRC)

DUAL VOLTAGE COMPARATORS
- TOP VIEW -


8
7
6
5
Vcc
(+2to+36V)
GND
1
2
3
4

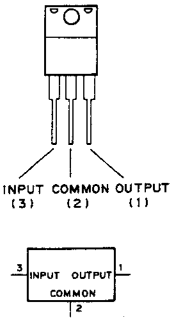
NJM4558S (JRC)

HIGH PERFORMANCE DUAL OPERATIONAL AMPLIFIER
- SIDE VIEW -


Vcc1
(+15V)
VEE
(-15V)
Vcc2
(+15V)
1
2
3
4
5
6
7
8
9

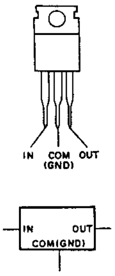
NJM7805FA (JRC) +5V
NJM7809FA (JRC) +9V
RC7805FA (RAYTHEON) +5V
RC7809FA (RAYTHEON) +9V

POSITIVE VOLTAGE REGULATOR
- FRONT VIEW -


INPUT COMMON OUTPUT
(3) (2) (1)
3
INPUT OUTPUT
1
COMMON
2

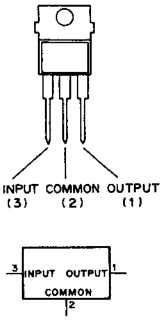
NJM7812A (JRC) +12V
NJM7812B (JRC) +12V
UPC7812H (NEC) +12V

POSITIVE VOLTAGE REGULATOR (1A)
- SIDE VIEW -


IN
COM
(GND)
OUT
IN
OUT
COM(GND)

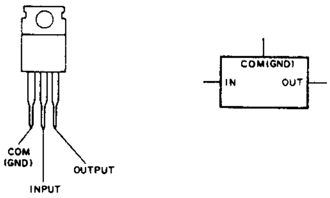
NJM78M12A (JRC) +12V

POSITIVE VOLTAGE REGULATOR (500mA)
- FRONT VIEW -


INPUT COMMON OUTPUT
(3) (2) (1)
3
INPUT OUTPUT
1
COMMON
2

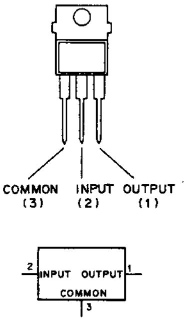
NJM7912A (JRC) -12V
uPC7912H (NEC) -12V

NEGATIVE VOLTAGE REGULATOR (1A)
- SIDE VIEW -

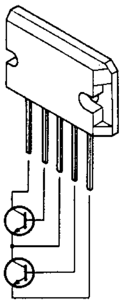

COM
(GND)
INPUT
OUTPUT
COM(GND)
IN
OUT

NJM79M12A (JRC) -12V

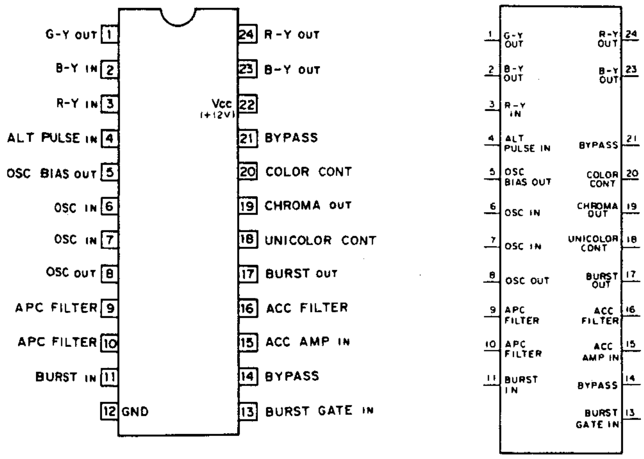
NEGATIVE VOLTAGE REGULATOR (500mA)
- FRONT VIEW -


COMMON INPUT OUTPUT
(3) (2) (1)
2
INPUT OUTPUT
1
COMMON
3

STR8124

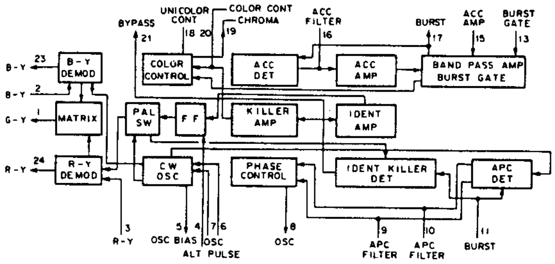


TA7193P (TOSHIBA)
TV CHROMA PROCESS (PAL)
— TOP VIEW —



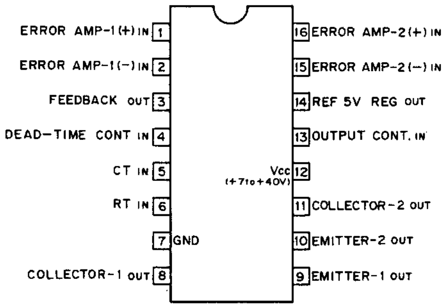
G-Y OUT 1
B-Y IN 2
R-Y IN 3
ALT PULSE IN 4
OSC BIAS OUT 5
OSC IN 6
OSC IN 7
OSC OUT 8
APC FILTER 9
APC FILTER 10
BURST IN 11
12 GND
24 R-Y OUT
23 B-Y OUT
Vcc (+12V) 22
21 BYPASS
20 COLOR CONT
19 CHROMA OUT
18 UNICOLOR CONT
17 BURST OUT
16 ACC FILTER
15 ACC AMP IN
14 BYPASS
13 BURST GATE IN

OUT ; OUTPUT
IN ; INPUT
CONT ; CONTROL

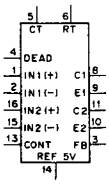


BYPASS
UNICOLOR CONT
COLOR CONT
CHROMA
ACC FILTER
BURST
ACC AMP
BURST GATE
B-Y
B-Y DEMOD
MATRIX
G-Y
R-Y
R-Y DEMOD
COLOR CONTROL
ACC DET
ACC AMP
BAND PASS AMP BURST GATE
PAL SW
F F
KILLER AMP
IDENT AMP
CW OSC
PHASE CONTROL
IDENT KILLER DET
APC DET
R-Y
OSC BIAS
OSC
ALT PULSE
OSC
APC FILTER
APC FILTER
BURST

TL494CN (TI)
PWM POWER CONTROL
- TOP VIEW -



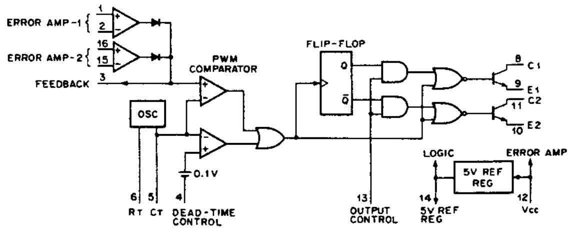
ERROR AMP-1 (+) IN 1
ERROR AMP-1 (−) IN 2
FEEDBACK OUT 3
DEAD-TIME CONT IN 4
CT IN 5
RT IN 6
7 GND
COLLECTOR-1 OUT 8
16 ERROR AMP-2 (+) IN
15 ERROR AMP-2 (−) IN
14 REF 5V REG OUT
13 OUTPUT CONT. IN
Vcc (+7 to +40V) 12
11 COLLECTOR-2 OUT
10 EMITTER-2 OUT
9 EMITTER-1 OUT



CT
RT
DEAD
IN1(+)
IN1(−)
IN2(+)
IN2(−)
CONT
REF 5V
C1
E1
C2
E2
FB

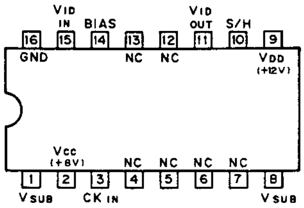
| OUTPUT CONTROL | OUTPUT FUNCTION |
|---|---|
| 0 | PARALLEL |
| 1 | PUSH-PULL |

0 ; GROUNDED
1 ; CONNECTED TO PIN 14

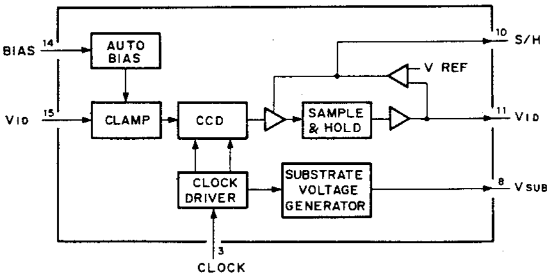


ERROR AMP-1
ERROR AMP-2
FEEDBACK
PWM COMPARATOR
FLIP-FLOP
OSC
0.1V
RT CT
DEAD-TIME CONTROL
OUTPUT CONTROL
5V REF REG
LOGIC
ERROR AMP
5V REF
Vcc
C1
E1
C2
E2

TL8608P (TOSHIBA)
N-CH CCD ANALOG PROCESSING UNIT
- TOP VIEW -

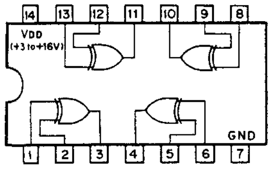


VID IN
BIAS
VID OUT
S/H
GND
NC
NC
VDD (+12V)
Vcc (+8V)
NC
NC
NC
NC
VSUB
CK IN
VSUB

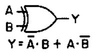


BIAS
AUTO BIAS
S/H
V REF
VID
CLAMP
CCD
SAMPLE & HOLD
VID
CLOCK DRIVER
SUBSTRATE VOLTAGE GENERATOR
VSUB
CLOCK

TC4030BP (TOSHIBA)
uPD4030BC (NEC)
C-MOS EXCLUSIVE OR GATE
- TOP VIEW -



VDD (+3 to +16V)
GND

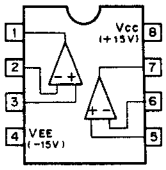


$Y = \bar{A} \cdot B + A \cdot \bar{B}$

| A | B | Y |
|---|---|---|
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |

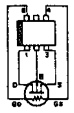
0: LOW LEVEL
1: HIGH LEVEL

TL082CP (TI)
uPC4082C (NEC)
OPERATIONAL AMPLIFIER
(J FET-INPUT)
- TOP VIEW -

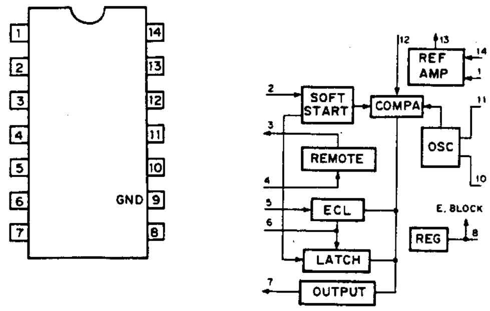


Vcc (+15V)
VEE (−15V)

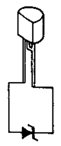
TX429M



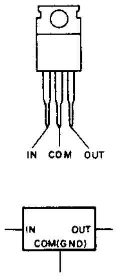
µPC1394C (NEC)
CONTROLLER OF SWITCHING MODE POWER SUPPLY
— TOP VIEW —


1
2
3
4
5
6
7
14
13
12
11
10
9
8
GND
SOFT START
COMPA
REF AMP
OSC
REMOTE
ECL
E. BLOCK
REG
LATCH
OUTPUT

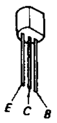
uPC574J



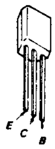
uPC78M12H (NEC) + 12V
POSITIVE VOLTAGE REGULATOR (0.5A)
- SIDE VIEW -


IN
COM
OUT
IN
OUT
COM(GND)

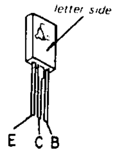
**2SA1091**
**2SA844**
**2SA933S**
**2SC1740**
**2SC1890A**
**2SC2551**
**2SC2878**
**2SC3068**



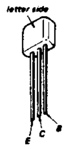
**2SA1048**
**2SA1115**
**2SC3327**
**2SC2458**
**2SC2603**
**2SC2668**
**2SC403SP**
**DTA124ES**
**DTA144ES**
**DTC124ES**
**DTC143TS**
**DTC144ES**



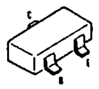
**2SA1142**
**2SA1156**
**2SC2688**
**2SC2752**
**2SD669A**


letter side
E
C
B

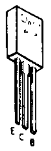
**2SA1175**
**2SC2785**


letter side
E
C
B

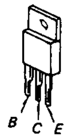
**2SA1226**
**2SC2757**
**2SC3524A**
**2SC3624A**
**DTA144EK**
**DTC144EK**



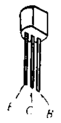
**2SA1406**
**2SC3600**



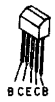
**2SA473**
**2SB858**
**2SB860**
**2SB861**
**2SC1173**
**2SC3675**
**2SD1134**
**2SD1137**



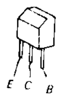
**2SA893A**
**2SB740**
**2SC1475**
**2SC2230A**
**2SC2910**
**2SD789**



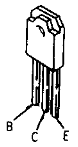
**2SA979**



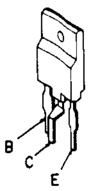
**2SB734**
**2SD774**



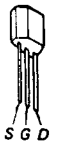
**2SC2555**



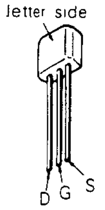
**2SD1556**



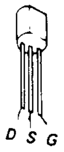
**2SK381**



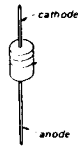
**2SK514**


letter side
D G S

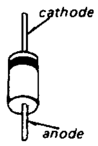
**2SK523-K1**
**2SK523-K2**
**2SK523-L1**



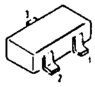
**1SS119**
**1SS133T**
**1SS148**
**RD3.0ES-B**
**RD8.2ES-B2**


cathode
anode

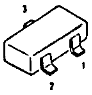
**1SS83**
**1S1555**
**1S2076**
**EQA02-06AV3**
**EQA02-07DV3**
**EQA02-08AV3**
**EQA02-10BV3**
**EQA02-11DV3**
**EQA02-14BV3**
**ERD28-04S**
**HZ10EB3**
**HZ12EB2**
**HZ12A2L**
**HZ15EB3**
**HZ4.3EB1**
**HZ4.3EB2**
**HZ4.3EB3**
**HZ5.6EB2**
**HZ6.2EB1**
**HZ6.2EB2**
**HZ6.2EB3**
**HZ7.5EB2**
**HZ7.5EB3**
**HZ9.1EB2**
**RD10EB3**
**RD12EB1**
**RD12EB2**
**RD12EB3**
**RD15EB3**
**RD3.0EB1**
**RD3.0EB2**
**RD3.9EB2**
**RD4.3EB1**
**RD4.3EB2**
**RD4.3EB3**
**RD4.7EL1**
**RD4.7EL2**
**RD4.7EL3**
**RD5.6EB2**
**RD6.2EB1**
**RD6.2EB2**
**RD6.2EB3**
**RD7.5EB3**
**RD9.1EB1**
**RD9.1EB2**
**RD9.1EB3**


cathode
anode

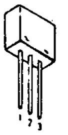
**1S2835**



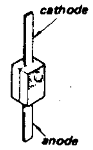
**1S2837**



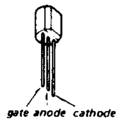
**1S2838**



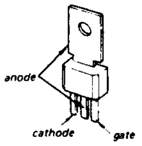
**1T25**


cathode
anode

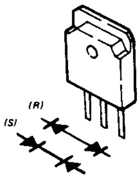
**CR02AM-4**


gate anode cathode

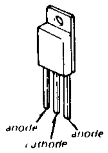
**CR3CM-8**


anode
cathode
gate

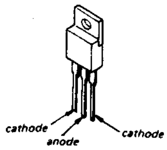
**CTU-38R**
**CTU-38S**



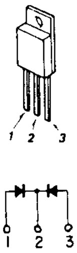
**ESAC25-04C**


anode
cathode
anode

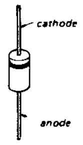
**ESAC25-04N**
**ESAD25-04D**


cathode
anode
cathode

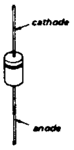
**ESAC31-02D**



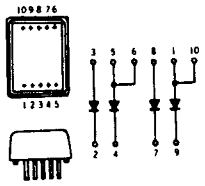
**10E2**
**ERB81-004**
**GP08D**
**HZT33-02**


cathode
anode

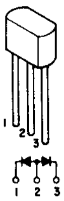
**HZ12EB1**
**HZ12EB3**
**HZ3.0EB1**
**HZ3.0EB2**
**HZ3.9EB2**
**HZ9.1EB1**
**HZ9.1EB3**


cathode
anode

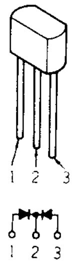
**LT-9220H**


10 9 8 7 6
1 2 3 4 5
3 5 6 8 1 10
2 4 7 9

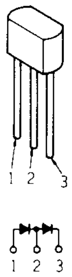
**MC911**



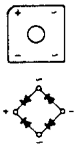
**MC921**



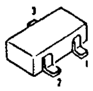
**MC931**



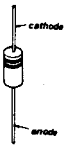
**RB406NH**



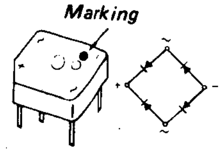
**RD5.6M-B2**



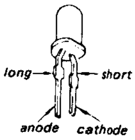
**ERC24-04S**
**ERC24-06S**
**RH-1**
**RU-1A**
**SIB01-02**


cathode
anode

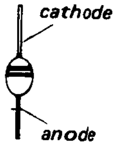
**S3WB60Z**



**TLG124A**
**TLR124**
**TLY124**
**TLO124**


long
short
anode
cathode

**U05G**
**V11N**


cathode
anode

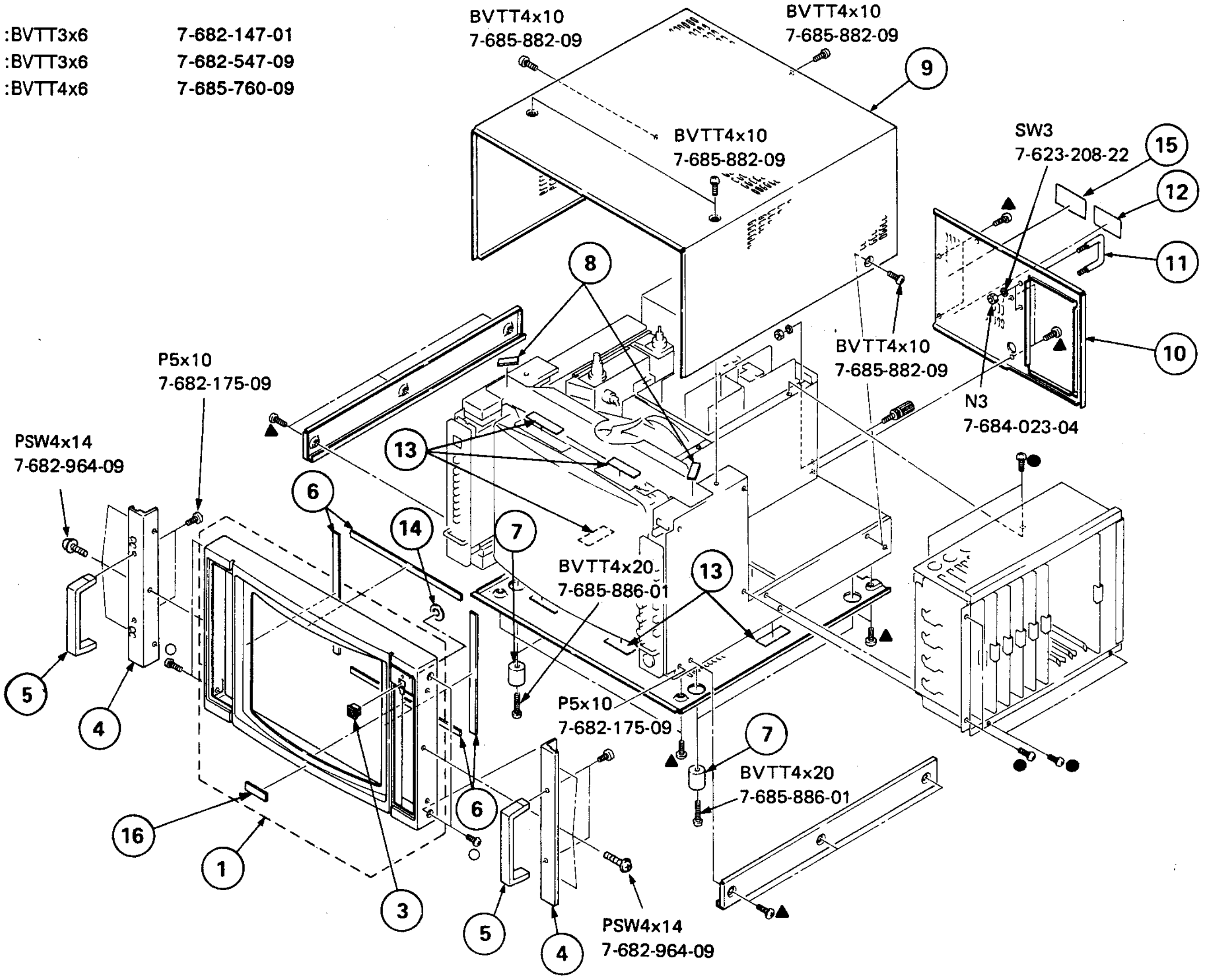
# SECTION 6
# EXPLODED VIEWS

**NOTE:**
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " ∗ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

## 6-1. BEZEL

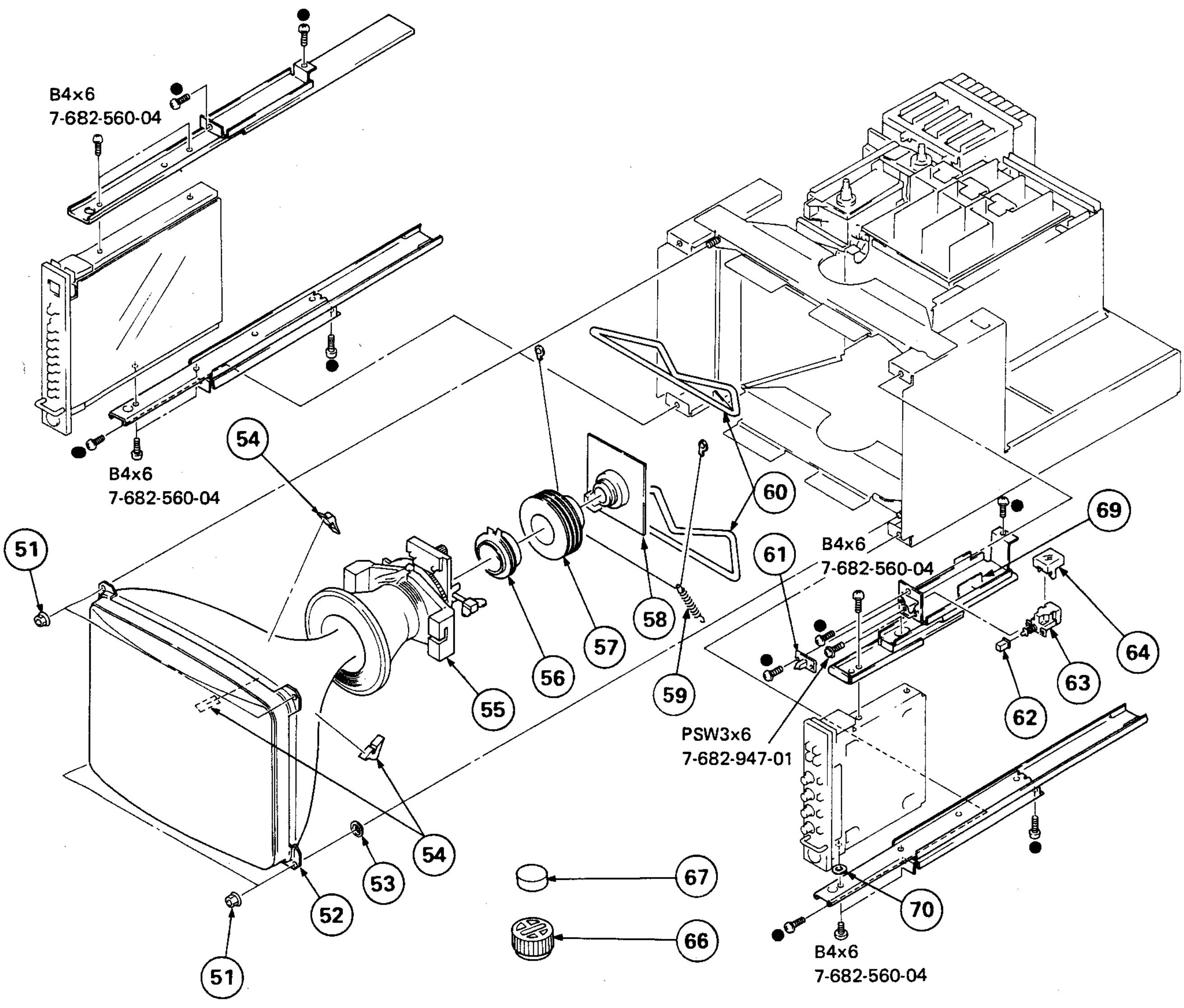
● :BVTT3x6 7-682-147-01
○ :BVTT3x6 7-682-547-09
▲ :BVTT4x6 7-685-760-09


BVTT4x10
7-685-882-09
BVTT4x10
7-685-882-09
9
BVTT4x10
7-685-882-09
SW3
7-623-208-22
15
12
11
8
10
BVTT4x10
7-685-882-09
N3
7-684-023-04
P5x10
7-682-175-09
PSW4x14
7-682-964-09
13
6
14
7
BVTT4x20
7-685-886-01
13
5
4
P5x10
7-682-175-09
7
BVTT4x20
7-685-886-01
16
1
6
3
5
4
PSW4x14
7-682-964-09

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 1 | X-4379-403-1 | BEZEL ASSY | |
| 3 | 4-379-423-01 | ESCUTCHEON (A) | |
| 4 | *2-378-214-01 | BASE, HANDLE | |
| 5 | *4-337-212-11 | HANDLE | |
| 6 | 4-308-878-XX | CUSHION, (A) PICTURE TUBE | |
| 7 | 3-642-656-01 | FOOT | |
| 8 | 9-911-840-XX | DAMPER, CASE (LOWER) | |
| 9 | *4-379-461-01 | CABINET | |
| 10 | *4-379-450-01 | COVER, BACK | |
| 11 | *4-379-476-01 | PROTECTOR, CONNECTOR | |
| 12 | *4-379-486-01 | LABEL, MODEL NUMBER (LARGE)(BVM-1410P ONLY) | |
| | *4-379-494-01 | LABEL, MODEL NUMBER (LARGE)(BVM-1410PM ONLY) | |
| 13 | 4-864-324-11 | SPACER | |
| 14 | 4-309-378-00 | SPACER | |
| 15 | 4-379-497-01 | LABEL (S), PTB (BVM-1410P ONLY) | |
| 16 | 3-668-914-00 | EMBLEM, SONY | |

## 6-2. PICTURE TUBE

● :BVTT3x6 7-682-147-01

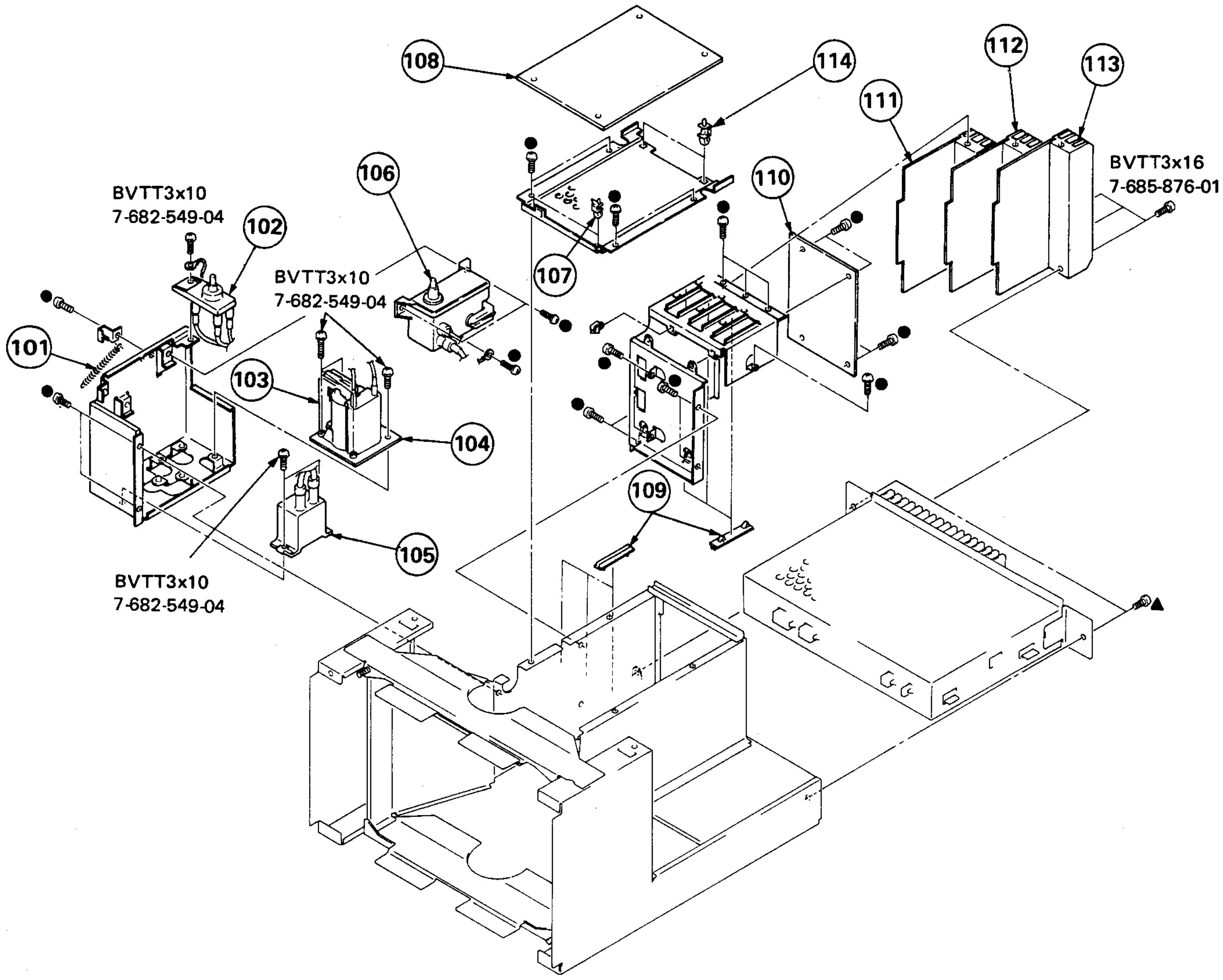

B4x6
7-682-560-04
B4x6
7-682-560-04
54
51
60
69
B4x6
7-682-560-04
61
58
57
64
56
63
55
59
62
PSW3x6
7-682-947-01
54
53
67
52
70
66
51
B4x6
7-682-560-04

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 51 | 4-306-034-00 | FLANGE NUT, (B) 5MM | |
| 52 | ⚠ 8-738-052-05 | PICTURE TUBE (M34JNR21X) | |
| 53 | 4-348-567-00 | WASHER, CRT POSITION | |
| 54 | 3-703-961-01 | SPACER, DY | |
| 55 | ⚠ 1-451-287-21 | DEFLECTION YOKE (SY-135B) | |
| 56 | ⚠ 1-452-261-22 | CRT NECK ASSY (362) | |
| 57 | ⚠ 1-452-117-31 | CRT NECK ASSY | |
| 58 | *1-617-889-11 | C BOARD | |
| 59 | 4-303-774-XX | SPRING | |
| 60 | ⚠ 1-426-263-11 | COIL, DEMAGNETIZATION | |
| 61 | *1-617-893-11 | Y BOARD | |
| 62 | 4-374-839-11 | BUTTON (A) | |
| 63 | ⚠ 1-570-052-12 | SWITCH, PUSH (AC POWER)(1 KEY) | |
| 64 | 4-373-038-01 | COVER, SWITCH, POWER | |
| 66 | 1-452-094-00 | MAGNET, ROTATABLE DISK; 15MM $\phi$ | |
| 67 | 1-452-032-00 | MAGNET, DISK; 10MM $\phi$ | |
| 69 | *9-911-844-XX | CUSHION, CONTROL BUTTON | |
| 70 | 4-866-147-11 | SPACER | |

## 6-3. CHASSIS

● :BVTT3x6 7-682-147-01
▲ :BVTT4x6 7-685-760-09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BVTT3x16
7-685-876-01
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BVTT3x10
7-682-549-04
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BVTT3x10
7-682-549-04
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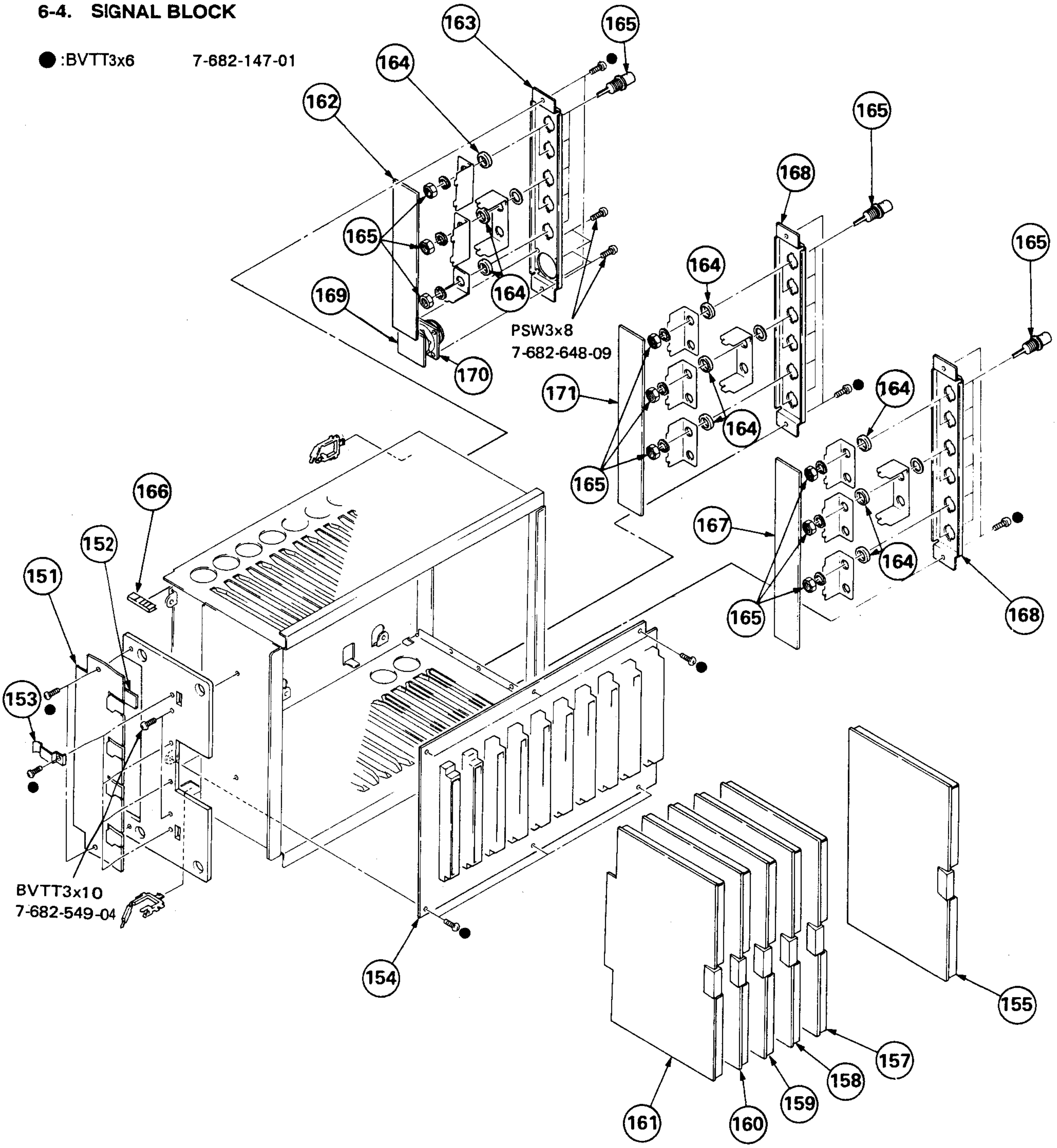
BVTT3x10
7-682-549-04

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 101 | 4-335-996-00 | SPRING | |
| 102 | ⚠ 1-237-165-12 | RESISTOR ASSY, HIGH-VOLTAGE | |
| 103 | ⚠ 1-439-382-21 | TRANSFORMER ASSY, FLYBACK | |
| 104 | *1-617-891-11 | PB BOARD | |
| 105 | ⚠ 1-162-142-21 | CAP BLOCK, HIGH VOLTAGE | |
| 106 | ⚠ 1-453-103-41 | HIGH-VOLTAGE BLOCK | |
| 107 | *3-703-141-00 | HOLDER, PCB | |
| 108 | *A-1135-362-A | BK BOARD, COMPLETE | |
| 109 | *3-680-613-01 | SUPPORT, PC BOARD | |
| 110 | *1-617-898-11 | TA BOARD | |
| 111 | *A-1345-596-A | EA BOARD, COMPLETE | |
| 112 | *A-1345-597-A | EB BOARD, COMPLETE | |
| 113 | *A-1345-598-A | PA BOARD, COMPLETE | |
| 114 | *4-353-620-02 | HINGE, PC BOARD | |

## 6-4. SIGNAL BLOCK

● :BVTT3x6 7-682-147-01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PSW3x8
7-682-648-09
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BVTT3x10
7-682-549-04
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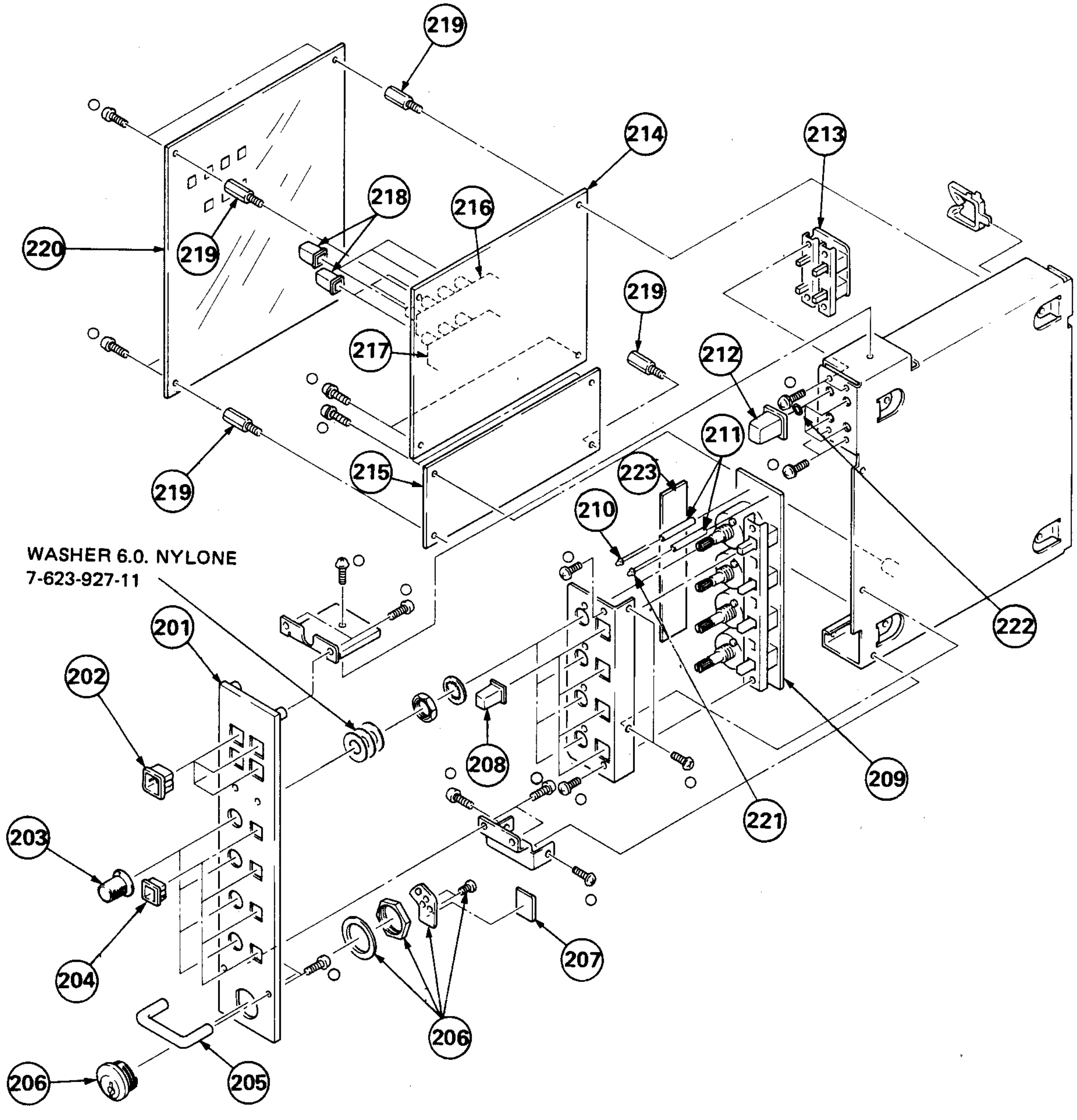
| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 151 | *1-617-885-11 | GC BOARD | |
| 152 | 4-370-970-01 | SPACER, TR | |
| 153 | *4-363-404-00 | HOLDER, IC | |
| 154 | *1-617-899-11 | TB BOARD | |
| 155 | *A-1135-355-A | BA BOARD, COMPLETE | |
| 157 | *A-1135-391-A | BD BOARD, COMPLETE (BVM-1410P ONLY) | |
| | *A-1135-424-A | BM BOARD, COMPLETE (BVM-1410PM ONLY) | |
| 158 | *A-1135-358-A | BG BOARD, COMPLETE | |
| 159 | *A-1135-359-A | BH BOARD, COMPLETE | |
| 160 | *A-1135-360-A | BI BOARD, COMPLETE | |
| 161 | *A-1135-361-A | BJ BOARD, COMPLETE | |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 162 | *1-617-897-11 | W BOARD | |
| 163 | *4-379-440-01 | PANEL (B), CONNECTOR | |
| 164 | *4-379-404-01 | INSULATOR, BNC | |
| 165 | 1-565-791-11 | CONNECTOR, BNC 1P | |
| 166 | *4-911-234-01 | EDGING | |
| 167 | *1-617-895-11 | QA BOARD | |
| 168 | *4-379-439-01 | PANEL (A), CONNECTOR | |
| 169 | *1-617-896-11 | V BOARD | |
| 170 | 1-563-265-11 | CONNECTOR, MULTIPLE 10P | |
| 171 | *1-618-786-11 | QB BOARD | |

## 6-5. DRAWER BLOCK (RIGHT)

○ :BVTT3x6 7-682-547-09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WASHER 6.0. NYLONE
7-623-927-11
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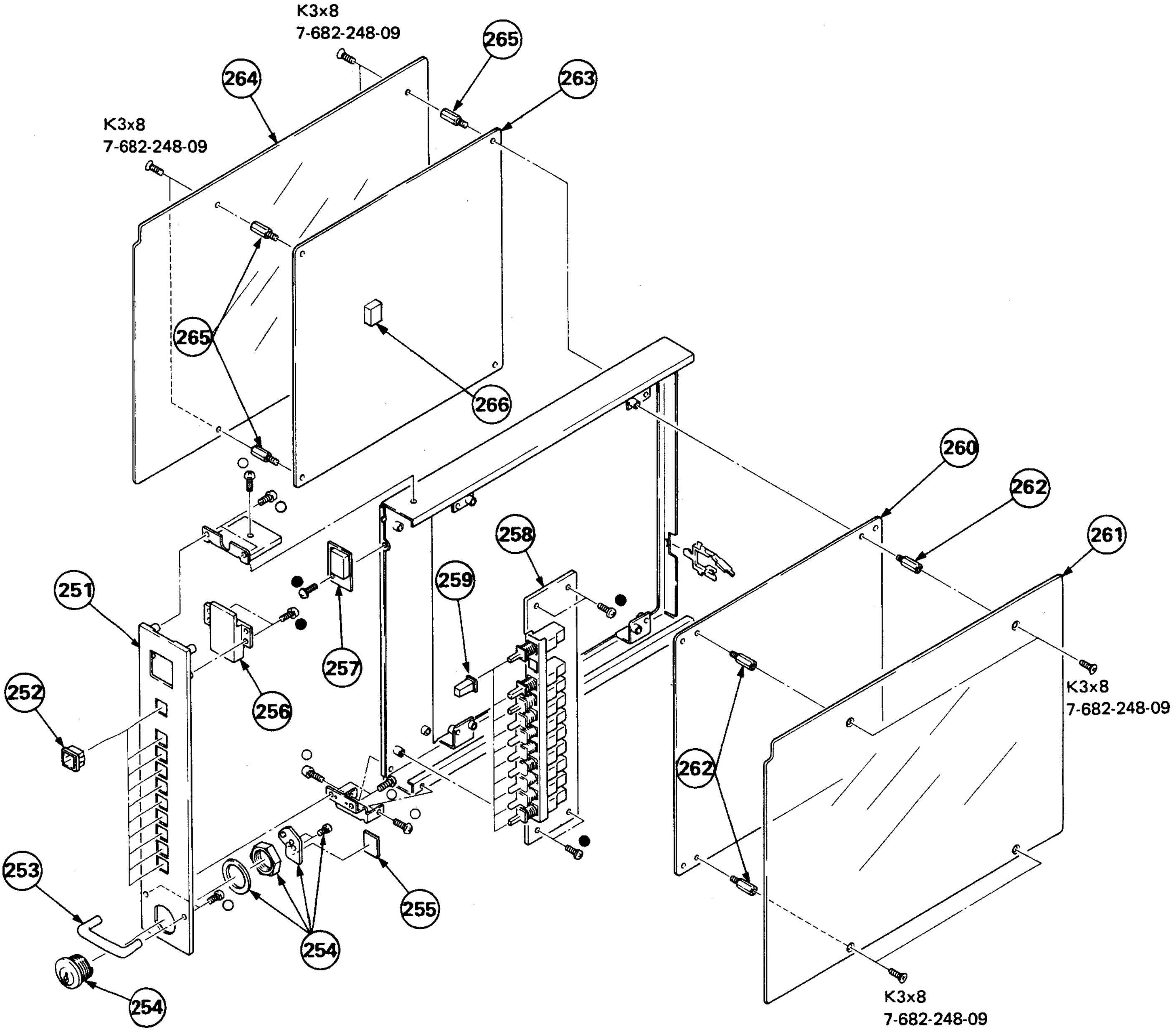
| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 201 | 4-379-453-01 | PANEL (RIGHT), CONTROL | |
| 202 | 4-379-423-01 | ESCUTCHEON (A) | |
| 203 | X-3673-635-0 | KNOB (1) ASSY, CONTROL | |
| 204 | 4-379-424-01 | ESCUTCHEON (B) | |
| 205 | 4-379-421-01 | HANDLE, DRAWER | |
| 206 | 4-378-917-01 | LOCK, CYLINDER | |
| 207 | 4-337-209-11 | PROTECTOR, SCRATCH | |
| 208 | 4-379-422-01 | BUTTON (B) | |
| 209 | *1-617-888-11 | HD BOARD<br>(BVM-1410P ONLY Serial No. up to 2001396<br>BVM-1410PM ONLY Serial No. up to 2000020) | |
| 209 | *1-627-681-11 | HG BOARD<br>(BVM-1410P ONLY Serial No. 2001397 and higher<br>BVM-1410PM ONLY Serial No. 2000021 and higher) | |
| 210 | 8-719-812-41 | DIODE TLR124 | |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 211 | *4-026-910-00 | HOLDER, LED | |
| 212 | 4-374-839-01 | BUTTON (A) | |
| 213 | *1-617-887-11 | HC BOARD | |
| 214 | *1-617-886-11 | HB BOARD | |
| 215 | *1-618-814-11 | HE BOARD | |
| 216 | 1-570-568-11 | SWITCH, PUSH (4 KEY) | |
| 217 | 1-570-569-11 | SWITCH, PUSH (3 KEY) | |
| 218 | 4-369-627-11 | PUSH BUTTON | |
| 219 | *2-264-136-00 | SUPPORT, SWITCH, PUSH BUTTON | |
| 220 | *4-379-475-01 | COVER, HB PC BOARD | |
| 221 | 8-719-938-68 | DIODE TLY124 | |
| 222 | 3-672-251-00 | RING (M4), O | |
| 223 | *1-627-682-11 | HH BOARD<br>(BVM-1410P ONLY Serial No. 2001397 and higher<br>BVM-1410PM ONLY Serial No. 2000021 and higher) | |

## 6-6. DRAWER BLOCK (LEFT)

● :BVTT3x6 7-682-147-01
○ :BVTT3x6 7-682-547-09


K3x8
7-682-248-09
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K3x8
7-682-248-09
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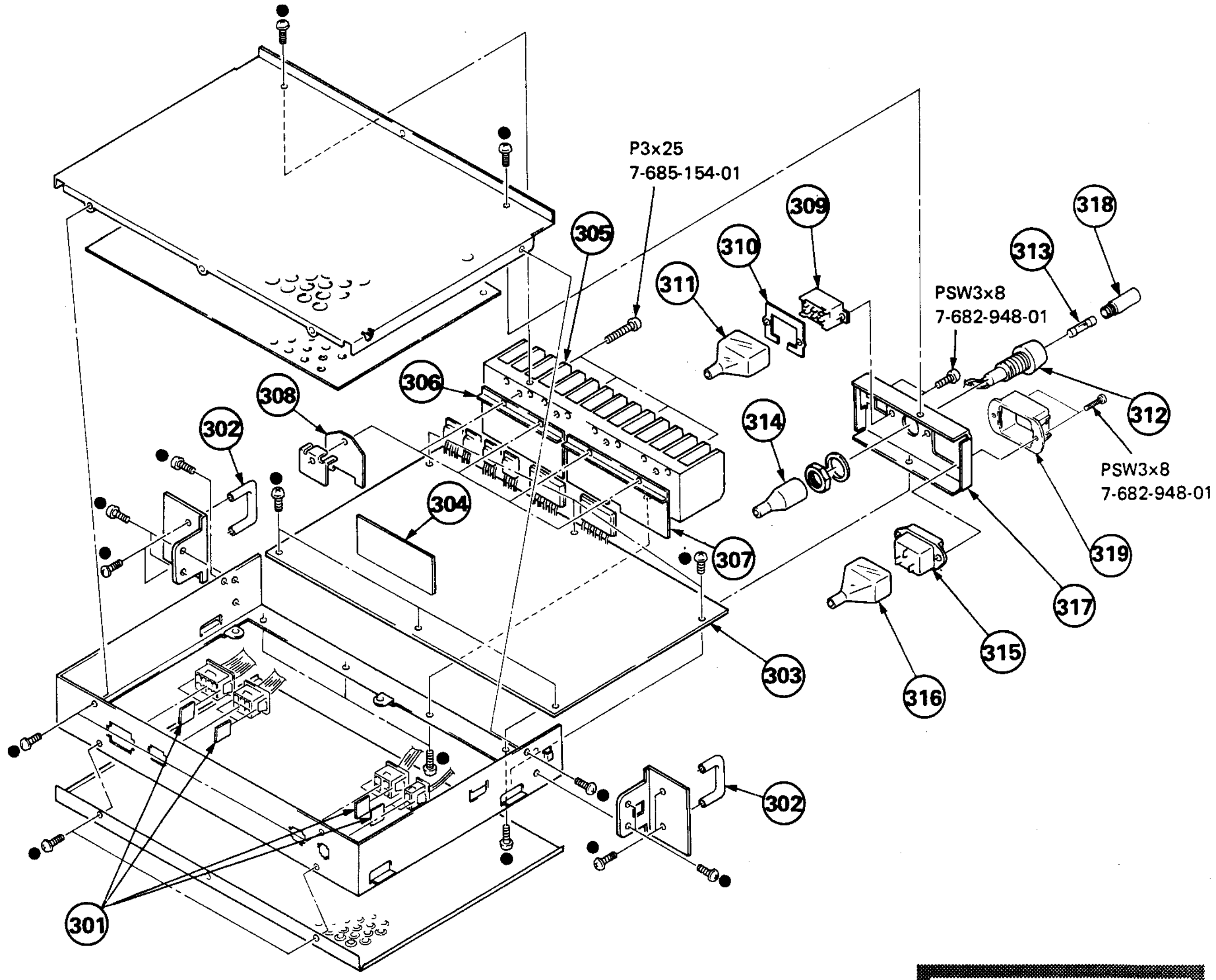
252
256
K3x8
7-682-248-09
262
253
255
254
254
K3x8
7-682-248-09

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 251 | 4-379-454-01 | PANEL (LEFT), CONTROL | |
| 252 | 4-379-423-01 | ESCUTCHEON (A) | |
| 253 | 4-379-421-01 | HANDLE, DRAWER | |
| 254 | 4-378-917-01 | LOCK, CYLINDER | |
| 255 | 4-337-209-11 | PROTECTOR, SCRATCH | |
| 256 | 4-379-418-01 | COVER, LAMP | |
| 257 | *1-617-892-11 | X BOARD | |
| 258 | *1-617-890-11 | HA BOARD | |
| 259 | 4-374-839-01 | BUTTON (A) | |
| 260 | *A-1345-767-A | DA BOARD, COMPLETE | |
| 261 | *4-379-481-01 | COVER, DA PC BOARD | |
| 262 | *2-264-136-00 | SUPPORT, SWITCH, PUSH BUTTON | |
| 263 | *A-1345-768-A | DB BOARD, COMPLETE | |
| 264 | *4-379-474-01 | COVER, DB PC BOARD | |
| 265 | *4-886-542-00 | SUPPORT | |
| 266 | 9-911-841-XX | CUSHION | |

## 6-7. POWER BLOCK

● :BVTT3x6 7-682-147-01



P3x25
7-685-154-01
PSW3x8
7-682-948-01
PSW3x8
7-682-948-01
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The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 301 | 3-675-469-00 | SPACER, SOLENOID | |
| 302 | 4-379-421-01 | HANDLE, DRAWER | |
| 303 | *A-1316-056-A | GA BOARD, COMPLETE (BVM-1410P ONLY) | |
| | *A-1316-048-A | GA BOARD, COMPLETE (BVM-1410PM ONLY) | |
| 304 | *1-617-884-11 | GB BOARD | |
| 305 | *4-347-706-00 | HEAT SINK (TR) | |
| 306 | 4-379-410-01 | SPACER (G2), POLISHING | |
| 307 | 4-379-403-01 | SPACER (G1), POLISHING | |
| 308 | *4-379-408-01 | INSULATOR (G3) | |
| 309 | ⚠ 1-570-173-22 | SWITCH, SLIDE (VOLTAGE CHANGE) | |
| 310 | *4-379-409-01 | NUT, PLATE | |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 311 | *4-371-879-02 | COVER, AC SELECT | |
| 312 | 1-533-167-21 | HOLDER, FUSE | |
| 313 | ⚠ 1-532-203-11 | FUSE, TIME-LAG 2A/250V (BVM-1410P ONLY) | |
| | ⚠ 1-532-746-11 | FUSE, GLASS TUBE 4A/125V (BVM-1410PM ONLY) | |
| 314 | *4-393-031-01 | COVER, FUSE HOLDER | |
| 315 | ⚠ 1-580-375-11 | 3P INLET | |
| 316 | *4-601-466-11 | COVER, 3P INLET | |
| 317 | *4-379-430-02 | PANEL, POWER | |
| 318 | 1-533-168-21 | HOLDER, FUSE | |
| 319 | 2-990-241-01 | HOLDER (A), PLUG | |

# SECTION 7
# ELECTRICAL PARTS LIST

NOTE:

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS
- All resistors are in ohms
- F : nonflammable

When indicating parts by reference number, please include the board name.

CAPACITORS
- MF : μF, PF : μμF

COILS
- MMH : mH, UH : μH

- The components identified by ⧓ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | *A-1135-355-A | BA BOARD, COMPLETE<br>*************** | | | |
| | *4-353-708-00 | HOOK, FINGER | | | |
| | *7-682-547-04 | SCREW BVTT 3X6 (S) | | | |
| | *8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | |

### CONNECTOR

| Ref.No | Part No. | Description |
|---|---|---|
| BA1 | *1-566-054-11 | PIN, CONNECTOR 2P |
| BA2 | *1-566-054-11 | PIN, CONNECTOR 2P |
| BA3 | *1-566-054-11 | PIN, CONNECTOR 2P |
| BA4 | *1-566-054-11 | PIN, CONNECTOR 2P |
| BA5 | *1-566-054-11 | PIN, CONNECTOR 2P |
| BA6 | *1-566-054-11 | PIN, CONNECTOR 2P |

### CAPACITOR

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C1 | 1-123-332-00 | ELECT | 47MF | 20% | 16V |
| C2 | 1-123-332-00 | ELECT | 47MF | 20% | 16V |
| C3 | 1-123-332-00 | ELECT | 47MF | 20% | 16V |
| C4 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C5 | 1-123-332-00 | ELECT | 47MF | 20% | 16V |
| C6 | 1-123-332-00 | ELECT | 47MF | 20% | 16V |
| C7 | 1-123-332-00 | ELECT | 47MF | 20% | 16V |
| C8 | 1-123-332-00 | ELECT | 47MF | 20% | 16V |
| C9 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C10 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C11 | 1-124-119-00 | ELECT | 330MF | 20% | 16V |
| C12 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C13 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C14 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C15 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C16 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C17 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C18 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C19 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C20 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C21 | 1-101-006-00 | CERAMIC | 0.047MF | | 50V |
| C31 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C32 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C33 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C34 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C35 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C36 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C37 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C38 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C39 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C51 | 1-124-119-00 | ELECT | 330MF | 20% | 16V |
| C52 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C53 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C54 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C55 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C56 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C57 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C71 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C72 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C73 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C74 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C75 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C76 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C77 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C101 | 1-102-038-00 | CERAMIC | 0.001MF | | 500V |
| C102 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C103 | 1-102-951-00 | CERAMIC | 15PF | 5% | 50V |
| C104 | 1-123-379-00 | ELECT | 0.47MF | 20% | 50V |
| C201 | 1-102-038-00 | CERAMIC | 0.001MF | | 500V |
| C202 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C203 | 1-102-951-00 | CERAMIC | 15PF | 5% | 50V |
| C204 | 1-123-379-00 | ELECT | 0.47MF | 20% | 50V |
| C301 | 1-102-038-00 | CERAMIC | 0.001MF | | 500V |
| C302 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C303 | 1-102-965-00 | CERAMIC | 39PF | 5% | 50V |
| C304 | 1-123-379-00 | ELECT | 0.47MF | 20% | 50V |
| C305 | 1-102-947-00 | CERAMIC | 10PF | 0.5PF | 50V |
| C306 | 1-102-942-00 | CERAMIC | 5PF | 1PF | 50V |
| C401 | 1-102-038-00 | CERAMIC | 0.001MF | | 500V |
| C402 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C403 | 1-102-951-00 | CERAMIC | 15PF | 5% | 50V |
| C404 | 1-123-379-00 | ELECT | 0.47MF | 20% | 50V |
| C501 | 1-102-038-00 | CERAMIC | 0.001MF | | 500V |
| C502 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C503 | 1-102-951-00 | CERAMIC | 15PF | 5% | 50V |
| C504 | 1-123-379-00 | ELECT | 0.47MF | 20% | 50V |
| C601 | 1-102-038-00 | CERAMIC | 0.001MF | | 500V |
| C602 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C603 | 1-102-951-00 | CERAMIC | 15PF | 5% | 50V |
| C604 | 1-123-379-00 | ELECT | 0.47MF | 20% | 50V |
| C701 | 1-102-976-00 | CERAMIC | 180PF | 5% | 50V |
| C702 | 1-102-947-00 | CERAMIC | 10PF | 0.5PF | 50V |
| C703 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C704 | 1-123-332-00 | ELECT | 47MF | 20% | 16V |
| C705 | 1-136-153-00 | FILM | 0.01MF | 5% | 50V |
| C706 | 1-123-380-00 | ELECT | 1MF | 20% | 50V |
| C707 | 1-123-369-00 | ELECT | 4.7MF | 20% | 25V |
| C708 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C709 | 1-102-973-00 | CERAMIC | 100PF | 5% | 50V |
| C710 | 1-130-481-00 | MYLAR | 0.0068MF | 5% | 50V |
| C711 | 1-136-155-00 | FILM | 0.015MF | 5% | 50V |
| C712 | 1-130-471-00 | MYLAR | 0.001MF | 5% | 50V |
| C713 | 1-123-380-00 | ELECT | 1MF | 20% | 50V |
| C714 | 1-102-973-00 | CERAMIC | 100PF | 5% | 50V |
| C715 | 1-101-361-00 | CERAMIC | 150PF | 5% | 50V |
| C716 | 1-136-153-00 | FILM | 0.01MF | 5% | 50V |
| C717 | 1-102-973-00 | CERAMIC | 100PF | 5% | 50V |

### TRIMMER

| Ref.No | Part No. | Description |
|---|---|---|
| CV101 | 1-141-179-12 | CAP, VAR, TRIMMER |
| CV102 | 1-141-260-00 | TRIMAR, CERAMIC |
| CV201 | 1-141-179-12 | CAP, VAR, TRIMMER |
| CV202 | 1-141-260-00 | TRIMAR, CERAMIC |

## BA

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| CV401 | 1-141-179-12 | CAP, VAR, TRIMMER | |
| CV402 | 1-141-260-00 | TRIMAR, CERAMIC | |
| CV501 | 1-141-179-12 | CAP, VAR, TRIMMER | |
| CV502 | 1-141-260-00 | TRIMAR, CERAMIC | |
| CV601 | 1-141-179-12 | CAP, VAR, TRIMMER | |
| CV602 | 1-141-260-00 | TRIMAR, CERAMIC | |

### DIODE

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| D1 | 8-719-109-63 | DIODE RD3.0ES-B2 | |
| D2 | 8-719-000-06 | DIODE MC921 | |
| D4 | 8-719-000-04 | DIODE MC911 | |
| D701 | 8-719-911-19 | DIODE 1SS119 | |
| D702 | 8-719-109-75 | DIODE RD4.3ES-B2 | |
| D703 | 8-719-911-19 | DIODE 1SS119 | |
| D704 | 8-719-911-19 | DIODE 1SS119 | |
| D705 | 8-719-911-19 | DIODE 1SS119 | |
| D706 | 8-719-911-19 | DIODE 1SS119 | |
| D707 | 8-719-911-19 | DIODE 1SS119 | |
| D708 | 8-719-911-19 | DIODE 1SS119 | |
| D709 | 8-719-911-19 | DIODE 1SS119 | |
| D710 | 8-719-911-19 | DIODE 1SS119 | |

### IC

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| IC1 | 8-759-208-94 | IC CX-894 | |
| IC2 | 8-759-208-94 | IC CX-894 | |
| IC3 | 8-759-040-53 | IC MC14053BCP | |

### TRANSISTOR

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| Q1 | 8-729-900-89 | TRANSISTOR DTC144ES | |
| Q2 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q3 | 8-729-900-89 | TRANSISTOR DTC144ES | |
| Q4 | 8-729-900-89 | TRANSISTOR DTC144ES | |
| Q5 | 8-729-900-89 | TRANSISTOR DTC144ES | |
| Q6 | 8-729-900-65 | TRANSISTOR DTA144ES | |
| Q101 | 8-729-266-82 | TRANSISTOR 2SC2668-O | |
| Q102 | 8-729-266-82 | TRANSISTOR 2SC2668-O | |
| Q103 | 8-729-266-82 | TRANSISTOR 2SC2668-O | |
| Q104 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q105 | 8-729-266-82 | TRANSISTOR 2SC2668-O | |
| Q201 | 8-729-266-82 | TRANSISTOR 2SC2668-O | |
| Q202 | 8-729-266-82 | TRANSISTOR 2SC2668-O | |
| Q203 | 8-729-266-82 | TRANSISTOR 2SC2668-O | |
| Q204 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q205 | 8-729-266-82 | TRANSISTOR 2SC2668-O | |
| Q301 | 8-729-266-82 | TRANSISTOR 2SC2668-O | |
| Q302 | 8-729-266-82 | TRANSISTOR 2SC2668-O | |
| Q303 | 8-729-266-82 | TRANSISTOR 2SC2668-O | |
| Q304 | 8-729-384-48 | TRANSISTOR 2SA844-D | |
| Q305 | 8-729-266-82 | TRANSISTOR 2SC2668-O | |
| Q401 | 8-729-266-82 | TRANSISTOR 2SC2668-O | |
| Q402 | 8-729-266-82 | TRANSISTOR 2SC2668-O | |
| Q403 | 8-729-266-82 | TRANSISTOR 2SC2668-O | |
| Q404 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q405 | 8-729-266-82 | TRANSISTOR 2SC2668-O | |
| Q501 | 8-729-266-82 | TRANSISTOR 2SC2668-O | |
| Q502 | 8-729-266-82 | TRANSISTOR 2SC2668-O | |
| Q503 | 8-729-266-82 | TRANSISTOR 2SC2668-O | |
| Q504 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q505 | 8-729-266-82 | TRANSISTOR 2SC2668-O | |
| Q601 | 8-729-266-82 | TRANSISTOR 2SC2668-O | |
| Q602 | 8-729-266-82 | TRANSISTOR 2SC2668-O | |
| Q603 | 8-729-266-82 | TRANSISTOR 2SC2668-O | |
| Q604 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q605 | 8-729-266-82 | TRANSISTOR 2SC2668-O | |
| Q701 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | |
| Q702 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q703 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q704 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q705 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q706 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | |
| Q707 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q708 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | |
| Q709 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q710 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | |
| Q711 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | |
| Q712 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | |
| Q713 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | |
| Q714 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q715 | 8-729-800-10 | TRANSISTOR 2SC3068 | |
| Q716 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q717 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | |

### RESISTOR

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R1 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R2 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R3 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R4 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R5 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R6 | 1-249-432-11 | CARBON | 18K | 5% | 1/4W | |
| R7 | 1-249-434-11 | CARBON | 27K | 5% | 1/4W | |
| R8 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R9 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R10 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R11 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R12 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R13 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R14 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R101 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R102 | 1-249-418-11 | CARBON | 1.2K | 5% | 1/4W | |
| R103 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R104 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R105 | 1-215-437-00 | METAL | 4.7K | 1% | 1/6W | |
| R106 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R107 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R108 | 1-215-427-00 | METAL | 1.8K | 1% | 1/6W | |
| R109 | 1-215-415-00 | METAL | 560 | 1% | 1/6W | |
| R110 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R111 | 1-215-431-00 | METAL | 2.7K | 1% | 1/6W | |
| R112 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R113 | 1-249-393-11 | CARBON | 10 | 5% | 1/4W | |
| R201 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R202 | 1-249-418-11 | CARBON | 1.2K | 5% | 1/4W | |
| R203 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R204 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R205 | 1-215-437-00 | METAL | 4.7K | 1% | 1/6W | |
| R206 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R207 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R208 | 1-215-427-00 | METAL | 1.8K | 1% | 1/6W | |
| R209 | 1-215-415-00 | METAL | 560 | 1% | 1/6W | |
| R210 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R211 | 1-215-431-00 | METAL | 2.7K | 1% | 1/6W | |
| R212 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R213 | 1-249-393-11 | CARBON | 10 | 5% | 1/4W | |
| R301 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R302 | 1-249-418-11 | CARBON | 1.2K | 5% | 1/4W | |
| R303 | 1-249-426-11 | CARBON | 5.6K | 5% | 1/4W | |
| R304 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R305 | 1-249-426-11 | CARBON | 5.6K | 5% | 1/4W | |
| R306 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R307 | 1-249-432-11 | CARBON | 18K | 5% | 1/4W | |

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| R308 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R309 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R310 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R311 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R312 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R313 | 1-249-393-11 | CARBON | 10 | 5% | 1/4W |
| R401 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R402 | 1-249-418-11 | CARBON | 1.2K | 5% | 1/4W |
| R403 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W |
| R404 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R405 | 1-215-437-00 | METAL | 4.7K | 1% | 1/6W |
| R406 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W |
| R407 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R408 | 1-215-427-00 | METAL | 1.8K | 1% | 1/6W |
| R409 | 1-215-415-00 | METAL | 560 | 1% | 1/6W |
| R410 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R411 | 1-215-431-00 | METAL | 2.7K | 1% | 1/6W |
| R412 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R413 | 1-249-393-11 | CARBON | 10 | 5% | 1/4W |
| R501 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R502 | 1-249-418-11 | CARBON | 1.2K | 5% | 1/4W |
| R503 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W |
| R504 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R505 | 1-215-437-00 | METAL | 4.7K | 1% | 1/6W |
| R506 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W |
| R507 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R508 | 1-215-427-00 | METAL | 1.8K | 1% | 1/6W |
| R509 | 1-215-415-00 | METAL | 560 | 1% | 1/6W |
| R510 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R511 | 1-215-431-00 | METAL | 2.7K | 1% | 1/6W |
| R512 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R513 | 1-249-393-11 | CARBON | 10 | 5% | 1/4W |
| R601 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R602 | 1-249-418-11 | CARBON | 1.2K | 5% | 1/4W |
| R603 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W |
| R604 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R605 | 1-215-437-00 | METAL | 4.7K | 1% | 1/6W |
| R606 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W |
| R607 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R608 | 1-215-427-00 | METAL | 1.8K | 1% | 1/6W |
| R609 | 1-215-415-00 | METAL | 560 | 1% | 1/6W |
| R610 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R611 | 1-215-431-00 | METAL | 2.7K | 1% | 1/6W |
| R612 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R613 | 1-249-393-11 | CARBON | 10 | 5% | 1/4W |
| R701 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R702 | 1-249-438-11 | CARBON | 56K | 5% | 1/4W |
| R703 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R704 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R705 | 1-249-424-11 | CARBON | 3.9K | 5% | 1/4W |
| R706 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R707 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R708 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R709 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W |
| R710 | 1-249-418-11 | CARBON | 1.2K | 5% | 1/4W |
| R711 | 1-249-434-11 | CARBON | 27K | 5% | 1/4W |
| R712 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R713 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R714 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W |
| R715 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R716 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R717 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W |
| R718 | 1-249-410-11 | CARBON | 270 | 5% | 1/4W |
| R719 | 1-249-414-11 | CARBON | 560 | 5% | 1/4W |
| R720 | 1-247-850-11 | CARBON | 6.2K | 5% | 1/4W |
| R721 | 1-249-438-11 | CARBON | 56K | 5% | 1/4W |
| R722 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W |
| R723 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W |
| R724 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R725 | 1-249-438-11 | CARBON | 56K | 5% | 1/4W |
| R726 | 1-247-895-00 | CARBON | 470K | 5% | 1/4W |
| R727 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W |
| R728 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W |
| R729 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W |
| R730 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R731 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R732 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R733 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R734 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R735 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R736 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W |
| R737 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R738 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W |
| R739 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R740 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R741 | 1-202-473-00 | SOLID | 5.6M | 5% | 1/4W |

VARIABLE RESISTOR

| | | |
|---|---|---|
| RV101 | 1-237-514-21 | RES, ADJ, CERMET 500 |
| RV201 | 1-237-514-21 | RES, ADJ, CERMET 500 |
| RV401 | 1-237-514-21 | RES, ADJ, CERMET 500 |
| RV501 | 1-237-514-21 | RES, ADJ, CERMET 500 |
| RV601 | 1-237-514-21 | RES, ADJ, CERMET 500 |

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| | | |
|---|---|---|
| *A-1135-391-A | BD BOARD, COMPLETE<br>*************** | (BVM-1410P ONLY) |
| *A-1135-424-A | BM BOARD, COMPLETE<br>*************** | (BVM-1410PM ONLY) |

| | |
|---|---|
| *4-353-708-00 | HOOK, FINGER |
| 7-682-950-01 | SCREW PSW 3X12 |
| 7-682-547-04 | SCREW BVTT 3X6 (S) |

CAPACITOR

| | | | | | |
|---|---|---|---|---|---|
| C1 | 1-102-858-00 | CERAMIC<br>(BVM-1410P ONLY) | 10PF | 0.5PF | 50V |
| C1 | 1-102-951-00 | CERAMIC<br>(BVM-1410PM ONLY) | 15PF | 5% | 50V |
| C2 | 1-102-858-00 | CERAMIC<br>(BVM-1410P ONLY) | 10PF | 0.5PF | 50V |
| C2 | 1-102-951-00 | CERAMIC<br>(BVM-1410PM ONLY) | 15PF | 5% | 50V |
| C3 | 1-102-963-00 | CERAMIC<br>(BVM-1410P ONLY) | 33PF | 5% | 50V |
| C4 | 1-101-880-00 | CERAMIC<br>(BVM-1410P ONLY) | 47PF | 5% | 50V |
| C4 | 1-101-361-00 | CERAMIC<br>(BVM-1410PM ONLY) | 39PF | 5% | 50V |
| C6 | 1-101-888-00 | CERAMIC<br>(BVM-1410P ONLY) | 68PF | 5% | 50V |
| C6 | 1-101-884-00 | CERAMIC<br>(BVM-1410PM ONLY) | 56PF | 5% | 50V |
| C7 | 1-102-963-00 | CERAMIC<br>(BVM-1410P ONLY) | 33PF | 5% | 50V |
| C7 | 1-101-361-00 | CERAMIC<br>(BVM-1410PM ONLY) | 39PF | 5% | 50V |
| C8 | 1-102-943-00 | CERAMIC<br>(BVM-1410P ONLY) | 6PF | 0.5PF | 50V |
| C8 | 1-102-935-00 | CERAMIC<br>(BVM-1410PM ONLY) | 2PF | 0.25PF | 50V |
| C9 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C10 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |

**BD** **BM**

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C11 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C12 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C13 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C14 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C15 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C16 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C17 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C18 | 1-102-950-00 | CERAMIC<br>(BVM-1410P ONLY) | 13PF | 5% | 50V |
| C18 | 1-102-951-00 | CERAMIC<br>(BVM-1410PM ONLY) | 15PF | 5% | 50V |
| C19 | 1-102-668-00 | CERAMIC<br>(BVM-1410P ONLY) | 15PF | 5% | 50V |
| C19 | 1-102-951-00 | CERAMIC<br>(BVM-1410PM ONLY) | 15PF | 5% | 50V |
| C20 | 1-101-888-00 | CERAMIC<br>(BVM-1410P ONLY) | 68PF | 5% | 50V |
| C20 | 1-101-884-00 | CERAMIC<br>(BVM-1410PM ONLY) | 56PF | 5% | 50V |
| C21 | 1-136-157-00 | FILM | 0.022MF | 5% | 50V |
| C22 | 1-136-157-00 | FILM | 0.022MF | 5% | 50V |
| C23 | 1-123-380-00 | ELECT<br>(BVM-1410P ONLY) | 1MF | 20% | 50V |
| C23 | 1-136-153-00 | FILM<br>(BVM-1410PM ONLY) | 0.01MF | 5% | 50V |
| C24 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C25 | 1-123-332-00 | ELECT | 47MF | 20% | 16V |
| C26 | 1-109-678-00 | MICA<br>(BVM-1410P ONLY) | 160PF | 1% | 500V |
| C26 | 1-109-676-00 | MICA<br>(BVM-1410PM ONLY) | 130PF | 1% | 500V |
| C27 | 1-102-960-00 | CERAMIC | 24PF | 5% | 50V |
| C28 | 1-109-685-00 | MICA | 330PF | 1% | 500V |
| C29 | 1-123-332-00 | ELECT | 47MF | 20% | 16V |
| C30 | 1-109-678-00 | MICA<br>(BVM-1410P ONLY) | 160PF | 1% | 500V |
| C30 | 1-109-676-00 | MICA<br>(BVM-1410PM ONLY) | 130PF | 1% | 500V |
| C31 | 1-102-960-00 | CERAMIC | 24PF | 5% | 50V |
| C32 | 1-109-685-00 | MICA | 330PF | 1% | 500V |
| C33 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C34 | 1-136-153-00 | FILM | 0.01MF | 5% | 50V |
| C35 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C36 | 1-123-379-00 | ELECT | 0.47MF | 20% | 50V |
| C37 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C38 | 1-123-382-00 | ELECT | 3.3MF | 20% | 50V |
| C39 | 1-109-667-11 | MICA | 56PF | 1% | 500V |
| C40 | 1-102-942-00 | CERAMIC | 5PF | 0.5PF | 50V |
| C41 | 1-109-681-00 | MICA | 220PF | 1% | 500V |
| C43 | 1-123-332-00 | ELECT | 47MF | 20% | 16V |
| C44 | 1-123-332-00 | ELECT | 47MF | 20% | 16V |
| C45 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C46 | 1-136-153-00 | FILM | 0.01MF | 5% | 50V |
| C49 | 1-123-379-00 | ELECT | 0.47MF | 20% | 50V |
| C50 | 1-123-382-00 | ELECT | 3.3MF | 20% | 50V |
| C51 | 1-109-667-11 | MICA | 56PF | 1% | 500V |
| C52 | 1-102-942-00 | CERAMIC | 5PF | 0.5PF | 50V |
| C53 | 1-109-681- | MICA | 220PF | 1% | 500V |
| C55 | 1-123-332-00 | ELECT | 47MF | 20% | 16V |
| C56 | 1-123-332-00 | ELECT | 47MF | 20% | 16V |
| C57 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C58 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C59 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C60 | 1-123-332-00 | ELECT | 47MF | 20% | 16V |
| C62 | 1-102-960-00 | CERAMIC<br>(BVM-1410P ONLY) | 24PF | 5% | 50V |
| C63 | 1-101-884-00 | CERAMIC | 56PF | 5% | 50V |
| C64 | 1-101-884-00 | CERAMIC | 56PF | 5% | 50V |

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C65 | 1-102-951-00 | CERAMIC | 15PF | 5% | 50V |
| C66 | 1-102-965-00 | CERAMIC | 39PF | 5% | 50V |
| C67 | 1-102-935-00 | CERAMIC | 2PF | 0.25PF | 50V |
| C68 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C69 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C70 | 1-123-369-00 | ELECT | 4.7MF | 20% | 50V |
| C71 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C75 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C80 | 1-126-301-11 | ELECT<br>(BVM-1410PM ONLY) | 1MF | 20% | 50V |
| C100 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C101 | 1-123-332-00 | ELECT | 47MF | 20% | 25V |
| C102 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C103 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C104 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C106 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C107 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C108 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C109 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C110 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C111 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C112 | 1-124-119-00 | ELECT | 330MF | 20% | 16V |
| C114 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C115 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C121 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C122 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C123 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C124 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C125 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C126 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C200 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C201 | 1-123-332-00 | ELECT | 47MF | 20% | 25V |
| C202 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C203 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C204 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C220 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C221 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C222 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C224 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C225 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C226 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C227 | 1-123-330-00 | ELECT | 22MF | 20% | 25V |
| C250 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C251 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C301 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C302 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C303 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C304 | 1-102-947-00 | CERAMIC<br>(BVM-1410P ONLY) | 10PF | 0.5PF | 50V |
| C312 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C313 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C316 | 1-102-935-00 | CERAMIC<br>(BVM-1410P ONLY) | 2PF | 0.25PF | 50V |
| C316 | 1-102-947-00 | CERAMIC<br>(BVM-1410PM ONLY) | 10PF | 0.5PF | 50V |
| C350 | 1-102-963-00 | CERAMIC<br>(BVM-1410P ONLY) | 33PF | 5% | 50V |
| C350 | 1-102-959-00 | CERAMIC<br>(BVM-1410PM ONLY) | 22PF | 5% | 50V |

### TRIMMER

| | | |
|---|---|---|
| CV1 | 1-141-171-00 | CAP,TRIMMER 15P |
| CV2 | 1-141-179-12 | CAP, VAR, TRIMMER |

### DIODE

| | | |
|---|---|---|
| D1 | 8-719-911-19 | DIODE 1SS119 |

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| D2 | 8-719-911-19 | DIODE 1SS119 | |
| D4 | 8-719-109-63 | DIODE RD3.0ES-B2 | |
| D5 | 8-719-110-13 | DIODE RD9.1ES-B2 | |
| D6 | 8-719-911-19 | DIODE 1SS119 | |
| D10 | 8-719-920-95 | DIODE 1T25-0 | |
| D11 | 8-719-911-19 | DIODE 1SS119 | |
| D12 | 8-719-110-31 | DIODE RD12ES-B2 | |
| D13 | 8-719-110-31 | DIODE RD12ES-B2 | |
| D15 | 8-719-911-19 | DIODE 1SS119 (BVM-1410PM ONLY) | |
| D16 | 8-719-911-19 | DIODE 1SS119 | |
| D201 | 8-719-911-19 | DIODE 1SS119 | |
| D202 | 8-719-911-19 | DIODE 1SS119 | |

### IC

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| IC1 | 8-759-204-21 | IC TA7193P | |
| IC2 | 8-759-800-81 | IC LA7016 | |
| IC3 | 8-759-246-15 | IC TL8608AP | |
| | 1-526-654-00 | SOCKET, IC (DP) 16P (;IC3) | |
| IC4 | 8-759-246-15 | IC TL8608AP | |
| | 1-526-654-00 | SOCKET, IC (DP) 16P (;IC4) | |
| IC5 | 8-759-040-53 | IC MC14053BCP | |
| IC6 | 8-759-800-81 | IC LA7016 | |
| IC7 | 8-759-945-58 | IC RC4558P | |
| IC8 | 8-759-945-58 | IC RC4558P | |

### COIL

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| L1 | 1-408-533-00 | COIL, VARIABLE | |
| L2 | 1-408-532-00 | COIL, VARIABLE | |
| L3 | 1-408-514-00 | COIL (VARIABLE) (BVM-1410P ONLY) | |
| L3 | 1-408-533-00 | COIL, VARIABLE (BVM-1410PM ONLY) | |
| L4 | 1-408-421-00 | INDUCTOR 100UH | |
| L5 | 1-408-429-00 | INDUCTOR 470UH | |
| L6 | 1-408-429-00 | INDUCTOR 470UH | |
| L8 | 1-408-421-00 | INDUCTOR 100UH | |
| L101 | 1-408-421-00 | INDUCTOR 100UH | |
| L102 | 1-408-421-00 | INDUCTOR 100UH | |

### TRANSISTOR

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| Q1 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q2 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q3 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q4 | 8-729-800-10 | TRANSISTOR 2SC3068 | |
| Q5 | 8-729-800-10 | TRANSISTOR 2SC3068 | |
| Q6 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q7 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q8 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q9 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q10 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE (BVM-1410P ONLY) | |
| Q10 | 8-729-384-48 | TRANSISTOR 2SA844-E (BVM-1410PM ONLY) | |
| Q11 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE (BVM-1410P ONLY) | |
| Q11 | 8-729-384-48 | TRANSISTOR 2SA844-E (BVM-1410PM ONLY) | |
| Q12 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q13 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q14 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q15 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q16 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q17 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q18 | 8-729-600-19 | TRANSISTOR 2SK381-A | |
| Q20 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE (BVM-1410P ONLY) | |
| Q20 | 8-729-384-48 | TRANSISTOR 2SA844-E (BVM-1410PM ONLY) | |
| Q21 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q22 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q23 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q24 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q25 | 8-729-800-10 | TRANSISTOR 2SC3068 | |
| Q26 | 8-729-600-19 | TRANSISTOR 2SK381-A | |
| Q28 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE (BVM-1410P ONLY) | |
| Q28 | 8-729-384-48 | TRANSISTOR 2SA844-E (BVM-1410PM ONLY) | |
| Q29 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q30 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q31 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q32 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q33 | 8-729-800-10 | TRANSISTOR 2SC3068 | |
| Q34 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q35 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q36 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q38 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q101 | 8-729-140-97 | TRANSISTOR 2SB734-34 | |
| Q102 | 8-729-320-62 | TRANSISTOR 2SD789-34 (BVM-1410P ONLY) | |
| Q102 | 8-729-378-93 | TRANSISTOR 2SD789-5 (BVM-1410PM ONLY) | |
| Q103 | 8-729-900-63 | TRANSISTOR DTA124ES | |
| Q104 | 8-729-900-63 | TRANSISTOR DTA124ES | |

### RESISTOR

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| R1 | 1-249-428-11 | CARBON 8.2K 5% 1/4W | |
| R2 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R3 | 1-249-422-11 | CARBON 2.7K 5% 1/4W | |
| R4 | 1-215-425-00 | METAL 1.5K 1% 1/6W<br>(BVM-1410P ONLY) | |
| R4 | 1-215-421-00 | METAL 1K 1% 1/6W<br>(BVM-1410PM ONLY) | |
| R5 | 1-215-395-00 | METAL 82 1% 1/6W<br>(BVM-1410P ONLY) | |
| R5 | 1-215-398-00 | METAL 110 1% 1/6W<br>(BVM-1410PM ONLY) | |
| R6 | 1-215-421-00 | METAL 1K 1% 1/6W | |
| R7 | 1-215-421-00 | METAL 1K 1% 1/6W | |
| R8 | 1-215-423-00 | METAL 1.2K 1% 1/6W<br>(BVM-1410P ONLY) | |
| R8 | 1-215-427-00 | METAL 1.8K 1% 1/6W<br>(BVM-1410PM ONLY) | |
| R9 | 1-215-421-00 | METAL 1K 1% 1/6W | |
| R10 | 1-215-421-00 | METAL 1K 1% 1/6W | |
| R11 | 1-215-391-00 | METAL 56 1% 1/6W<br>(BVM-1410P ONLY) | |
| R11 | 1-215-400-00 | METAL 130 1% 1/6W<br>(BVM-1410PM ONLY) | |
| R12 | 1-215-427-00 | METAL 1.8K 1% 1/6W<br>(BVM-1410P ONLY) | |
| R12 | 1-215-429-00 | METAL 2.2K 1% 1/6W<br>(BVM-1410PM ONLY) | |
| R13 | 1-249-425-11 | CARBON 4.7K 5% 1/4W | |
| R14 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R15 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R17 | 1-249-433-11 | CARBON 22K 5% 1/4W | |
| R18 | 1-215-425-00 | METAL 1.5K 1% 1/6W | |
| R19 | 1-215-425-00 | METAL 1.5K 1% 1/6W | |
| R20 | 1-215-425-00 | METAL 1.5K 1% 1/6W | |
| R21 | 1-215-425-00 | METAL 1.5K 1% 1/6W | |
| R22 | 1-249-405-11 | CARBON 100 5% 1/4W | |
| R23 | 1-215-441-00 | METAL 6.8K 1% 1/6W<br>(BVM-1410P ONLY) | |
| R23 | 1-215-439-00 | METAL 5.6K 1% 1/6W<br>(BVM-1410PM ONLY) | |
| R24 | 1-215-469-00 | METAL 100K 1% 1/6W | |
| R25 | 1-249-427-11 | CARBON 6.8K 5% 1/4W<br>(BVM-1410P ONLY) | |
| R25 | 1-249-425-11 | CARBON 4.7K 5% 1/4W<br>(BVM-1410PM ONLY) | |
| R26 | 1-249-415-11 | CARBON 680 5% 1/4W<br>(BVM-1410P ONLY) | |
| R26 | 1-249-418-11 | CARBON 1.2K 5% 1/4W<br>(BVM-1410PM ONLY) | |
| R27 | 1-249-415-11 | CARBON 680 5% 1/4W | |

## BD BM

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R28 | 1-249-420-11 | CARBON<br>(BVM-1410P ONLY) | 1.8K | 5% | 1/4W | |
| R28 | 1-249-423-11 | CARBON<br>(BVM-1410PM ONLY) | 3.3K | 5% | 1/4W | |
| R29 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R30 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R31 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R32 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R34 | 1-215-407-00 | METAL<br>(BVM-1410P ONLY) | 270 | 1% | 1/6W | |
| R34 | 1-215-417-00 | METAL<br>(BVM-1410PM ONLY) | 680 | 1% | 1/6W | |
| R35 | 1-215-407-00 | METAL<br>(BVM-1410P ONLY) | 270 | 1% | 1/6W | |
| R35 | 1-215-417-00 | METAL<br>(BVM-1410PM ONLY) | 680 | 1% | 1/6W | |
| R36 | 1-215-413-00 | METAL | 470 | 1% | 1/6W | |
| R37 | 1-215-443-00 | METAL | 8.2K | 1% | 1/6W | |
| R38 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R39 | 1-215-425-00 | METAL<br>(BVM-1410P ONLY) | 1.5K | 1% | 1/6W | |
| R39 | 1-215-429-00 | METAL<br>(BVM-1410PM ONLY) | 2.2K | 1% | 1/6W | |
| R40 | 1-215-421-00 | METAL<br>(BVM-1410P ONLY) | 1K | 1% | 1/6W | |
| R40 | 1-249-417-11 | CARBON<br>(BVM-1410PM ONLY) | 1K | 5% | 1/4W | |
| R41 | 1-215-429-00 | METAL<br>(BVM-1410P ONLY) | 2.2K | 1% | 1/6W | |
| R41 | 1-249-421-11 | CARBON<br>(BVM-1410PM ONLY) | 2.2K | 5% | 1/4W | |
| R42 | 1-215-445-00 | METAL<br>(BVM-1410P ONLY) | 10K | 1% | 1/6W | |
| R42 | 1-249-429-11 | CARBON<br>(BVM-1410PM ONLY) | 10K | 5% | 1/4W | |
| R43 | 1-215-421-00 | METAL<br>(BVM-1410P ONLY) | 1K | 1% | 1/6W | |
| R43 | 1-249-417-11 | CARBON<br>(BVM-1410PM ONLY) | 1K | 5% | 1/4W | |
| R44 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R45 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R46 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R47 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R48 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R54 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R55 | 1-215-418-00 | METAL<br>(BVM-1410P ONLY) | 750 | 1% | 1/6W | |
| R55 | 1-215-420-00 | METAL<br>(BVM-1410PM ONLY) | 910 | 1% | 1/6W | |
| R56 | 1-215-420-00 | METAL | 910 | 1% | 1/6W | |
| R57 | 1-249-415-11 | CARBON | 680 | 5% | 1/4W | |
| R58 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R59 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R60 | 1-215-418-00 | METAL<br>(BVM-1410P ONLY) | 750 | 1% | 1/6W | |
| R60 | 1-215-420-00 | METAL<br>(BVM-1410PM ONLY) | 910 | 1% | 1/6W | |
| R61 | 1-215-420-00 | METAL | 910 | 1% | 1/6W | |
| R62 | 1-249-415-11 | CARBON | 680 | 5% | 1/4W | |
| R63 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R64 | 1-215-477-00 | METAL<br>(BVM-1410P ONLY) | 220K | 1% | 1/6W | |
| R64 | 1-249-417-11 | CARBON<br>(BVM-1410PM ONLY) | 1K | 5% | 1/4W | |
| R65 | 1-215-435-00 | METAL<br>(BVM-1410P ONLY) | 3.9K | 1% | 1/6W | |
| R65 | 1-215-429-00 | METAL<br>(BVM-1410PM ONLY) | 2.2K | 1% | 1/6W | |
| R66 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R70 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R71 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R72 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R73 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R74 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R75 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | |
| R76 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | |
| R77 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R78 | 1-215-424-00 | METAL | 1.3K | 1% | 1/6W | |
| R79 | 1-215-419-00 | METAL | 820 | 1% | 1/6W | |
| R80 | 1-215-425-00 | METAL | 1.5K | 1% | 1/6W | |
| R81 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R82 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R83 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R84 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R85 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R86 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R87 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R88 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R89 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R90 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | |
| R91 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | |
| R92 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R93 | 1-215-424-00 | METAL | 1.3K | 1% | 1/6W | |
| R94 | 1-215-419-00 | METAL | 820 | 1% | 1/6W | |
| R95 | 1-215-425-00 | METAL | 1.5K | 1% | 1/6W | |
| R96 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R97 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R98 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R99 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R100 | 1-215-438-00 | METAL | 5.1K | 1% | 1/6W | |
| R101 | 1-215-438-00 | METAL | 5.1K | 1% | 1/6W | |
| R102 | 1-215-438-00 | METAL | 5.1K | 1% | 1/6W | |
| R103 | 1-215-438-00 | METAL | 5.1K | 1% | 1/6W | |
| R104 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R105 | 1-249-438-11 | CARBON | 56K | 5% | 1/4W | |
| R106 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R107 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R108 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R109 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R110 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R115 | 1-215-438-00 | METAL<br>(BVM-1410P ONLY) | 5.1K | 1% | 1/6W | |
| R115 | 1-215-429-00 | METAL<br>(BVM-1410PM ONLY) | 2.2K | 1% | 1/6W | |
| R116 | 1-215-438-00 | METAL<br>(BVM-1410P ONLY) | 5.1K | 1% | 1/6W | |
| R116 | 1-215-429-00 | METAL<br>(BVM-1410PM ONLY) | 2.2K | 1% | 1/6W | |
| R120 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R121 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R130 | 1-215-477-00 | METAL<br>(BVM-1410P ONLY) | 220K | 1% | 1/6W | |
| R130 | 1-215-485-00 | METAL<br>(BVM-1410PM ONLY) | 470K | 1% | 1/6W | |
| R150 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R201 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W | |
| R202 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W | |
| R203 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R204 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W | |
| R220 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R221 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R222 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R250 | 1-215-415-00 | METAL | 560 | 1% | 1/6W | |
| R251 | 1-215-415-00 | METAL | 560 | 1% | 1/6W | |
| R252 | 1-215-421-00 | METAL | 1K | 1% | 1/6W | |

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| R254 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R255 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W |
| R259 | 1-215-421-00 | METAL | 1K | 1% | 1/6W |
| R301 | 1-215-469-00 | METAL | 100K | 1% | 1/6W |
| R302 | 1-215-491-00 | METAL | 820K | 1% | 1/6W |
| R303 | 1-249-418-11 | CARBON | 1.2K | 5% | 1/4W |
| R305 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W |
| R306 | 1-249-428-11 | CARBON | 8.2K | 5% | 1/4W |
| R307 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R308 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R310 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R314 | 1-215-417-00 | METAL | 680 | 1% | 1/6W |
| R315 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R316 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W |
| R317 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W |
| R320 | 1-215-472-00 | METAL<br>(BVM-1410P ONLY) | 130K | 1% | 1/6W |
| R320 | 1-215-482-00 | METAL<br>(BVM-1410PM ONLY) | 360K | 1% | 1/6W |
| R353 | 1-249-432-11 | CARBON | 18K | 5% | 1/4W |
| R354 | 1-249-432-11 | CARBON | 18K | 5% | 1/4W |
| R400 | 1-215-429-00 | METAL | 2.2K | 1% | 1/6W |

### VARIABLE RESISTOR

| | | |
|---|---|---|
| RV1 | 1-237-515-21 | RES, ADJ, CERMET 1K |
| RV2 | 1-237-499-21 | RES, ADJ, CERMET 500 |
| RV3 | 1-237-501-21 | RES, ADJ, CERMET 2K |
| RV4 | 1-237-501-21 | RES, ADJ, CERMET 2K |
| RV5 | 1-237-517-21 | RES, ADJ, CERMET 5K |
| RV6 | 1-237-517-21 | RES, ADJ, CERMET 5K |
| RV7 | 1-237-504-21 | RES, ADJ, CERMET 20K |
| RV8 | 1-237-504-21 | RES, ADJ, CERMET 20K |
| RV9 | 1-237-517-21 | RES, ADJ, CERMET 5K |
| RV10 | 1-237-517-21 | RES, ADJ, CERMET 5K |

### THERMISTOR

| | | |
|---|---|---|
| TH1 | 1-800-202-XX | THERMISTOR S-10K (BVM-1410PM ONLY) |

### CRYSTAL

| | | |
|---|---|---|
| X1 | 1-567-504-11 | OSCILLATOR, CRYSTAL (BVM-1410P ONLY) |
| X1 | 1-527-794-00 | VIBRATOR, CRYSTAL (BVM-1410PM ONLY) |
| X2 | 1-567-409-11 | VIBRATOR, CRYSTAL (BVM-1410P ONLY) |
| X2 | 1-567-416-11 | VIBRATOR, CRYSTAL (BVM-1410PM ONLY) |

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*A-1135-358-A BG BOARD, COMPLETE
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| | | |
|---|---|---|
| | *4-353-708-00 | HOOK, FINGER |
| | 7-682-547-04 | SCREW BVTT 3X6 (S) |

### CAPACITOR

| | | | | | |
|---|---|---|---|---|---|
| C1 | 1-123-332-00 | ELECT | 47MF | 20% | 16V |
| C2 | 1-123-332-00 | ELECT | 47MF | 20% | 16V |
| C3 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C4 | 1-123-332-00 | ELECT | 47MF | 20% | 16V |
| C7 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C8 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C9 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C10 | 1-102-935-00 | CERAMIC | 2PF | 0.25PF | 50V |
| C12 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C15 | 1-102-965-00 | CERAMIC | 39PF | 5% | 50V |
| C16 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C22 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C25 | 1-102-965-00 | CERAMIC | 39PF | 5% | 50V |
| C26 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C32 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C33 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C34 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C35 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C41 | 1-102-942-00 | CERAMIC | 5PF | 1PF | 50V |
| C42 | 1-102-947-00 | CERAMIC | 10PF | 0.5PF | 50V |
| C44 | 1-102-936-00 | CERAMIC | 3PF | 0.25PF | 50V |
| C45 | 1-102-947-00 | CERAMIC | 10PF | 0.5PF | 50V |
| C47 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C51 | 1-102-942-00 | CERAMIC | 5PF | 0.5PF | 50V |
| C52 | 1-102-942-00 | CERAMIC | 5PF | 0.5PF | 50V |
| C53 | 1-123-356-00 | ELECT | 10MF | 20% | 25V |
| C54 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C55 | 1-102-976-00 | CERAMIC | 180PF | 5% | 50V |
| C56 | 1-102-976-00 | CERAMIC | 180PF | 5% | 50V |
| C101 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C102 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C103 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C105 | 1-124-122-11 | ELECT | 100MF | 20% | 16V |
| C106 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C111 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C112 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C113 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C114 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C115 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C116 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C117 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C131 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C132 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C133 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C135 | 1-124-122-11 | ELECT | 100MF | 20% | 16V |
| C136 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C141 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C142 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C143 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C144 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C145 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C146 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C147 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |

### TRIMMER

| | | |
|---|---|---|
| CV2 | 1-141-181-11 | CAP,TRIMMER |
| CV3 | 1-141-171-00 | CAP,TRIMMER 20P |

### DIODE

| | | |
|---|---|---|
| D1 | 8-719-911-19 | DIODE 1SS119 |
| D2 | 8-719-911-19 | DIODE 1SS119 |
| D3 | 8-719-016-42 | DIODE MC932 |
| D4 | 8-719-016-42 | DIODE MC932 |
| D5 | 8-719-911-19 | DIODE 1SS119 |
| D6 | 8-719-911-19 | DIODE 1SS119 |
| D7 | 8-719-911-19 | DIODE 1SS119 |
| D8 | 8-719-109-97 | DIODE RD6.2ES-B2 |
| D11 | 8-719-911-19 | DIODE 1SS119 |
| D12 | 8-719-911-19 | DIODE 1SS119 |
| D13 | 8-719-911-19 | DIODE 1SS119 |
| D14 | 8-719-911-19 | DIODE 1SS119 |
| D16 | 8-719-911-19 | DIODE 1SS119 |
| D17 | 8-719-911-19 | DIODE 1SS119 |

### DELAY LINE

| | | |
|---|---|---|
| DL1 | 1-415-477-11 | DELAY LINE |
| DL2 | 1-415-458-11 | DELAY LINE |
| DL3 | 1-415-458-11 | DELAY LINE |
| DL4 | 1-415-458-11 | DELAY LINE |

## IC

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| IC1 | 8-759-800-81 | IC LA7016 | |
| IC2 | 8-766-001-49 | TRANSISTOR TX-429M | |
| IC3 | 8-759-945-58 | IC RC4558P | |
| IC4 | 8-757-182-14 | IC CX-718D-1 | |
| IC5 | 8-759-040-53 | IC MC14053BCP | |
| IC6 | 8-759-040-53 | IC MC14053BCP | |
| IC7 | 8-759-990-82 | IC TL082CP | |
| IC8 | 8-759-990-82 | IC TL082CP | |
| IC9 | 8-759-990-82 | IC TL082CP | |

## COIL

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| L2 | 1-408-408-00 | INDUCTOR 8.2UH | |
| L3 | 1-408-413-00 | INDUCTOR 22UH | |
| L4 | 1-408-413-00 | INDUCTOR 22UH | |

## TRANSISTOR

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| Q1 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q5 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q7 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q8 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q9 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q10 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q11 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q12 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q13 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q14 | 8-729-800-10 | TRANSISTOR 2SC3068 | |
| Q21 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q22 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q23 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q24 | 8-729-600-19 | TRANSISTOR 2SK381-A | |
| Q25 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q26 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q27 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q28 | 8-729-600-19 | TRANSISTOR 2SK381-A | |
| Q29 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q30 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q31 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q32 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q33 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q34 | 8-729-600-19 | TRANSISTOR 2SK381-A | |
| Q35 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q36 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q37 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q38 | 8-729-600-19 | TRANSISTOR 2SK381-A | |
| Q39 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q40 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q41 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q42 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q43 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q44 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q45 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q49 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q50 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q51 | 8-729-900-63 | TRANSISTOR DTA124ES | |
| Q52 | 8-729-900-63 | TRANSISTOR DTA124ES | |
| Q53 | 8-729-900-63 | TRANSISTOR DTA124ES | |
| Q54 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q55 | 8-729-600-19 | TRANSISTOR 2SK381-A | |
| Q56 | 8-729-900-63 | TRANSISTOR DTA124ES | |
| Q57 | 8-729-900-63 | TRANSISTOR DTA124ES | |
| Q58 | 8-729-900-63 | TRANSISTOR DTA124ES | |
| Q59 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q60 | 8-729-600-19 | TRANSISTOR 2SK381-A | |
| Q71 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q72 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q73 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q74 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q75 | 8-729-800-10 | TRANSISTOR 2SC3068 | |
| Q76 | 8-729-900-63 | TRANSISTOR DTA124ES | |
| Q77 | 8-729-900-63 | TRANSISTOR DTA124ES | |
| Q78 | 8-729-900-89 | TRANSISTOR DTC144ES | |
| Q81 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q82 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q83 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q84 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q85 | 8-729-800-10 | TRANSISTOR 2SC3068 | |

## RESISTOR

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R1 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R2 | 1-215-396-00 | METAL | 91 | 1% | 1/6W | |
| R3 | 1-215-431-00 | METAL | 2.7K | 1% | 1/6W | |
| R4 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R6 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R7 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R8 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R10 | 1-247-830-11 | CARBON | 910 | 5% | 1/4W | |
| R11 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R12 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R13 | 1-215-462-00 | METAL | 51K | 1% | 1/6W | |
| R14 | 1-249-426-11 | CARBON | 5.6K | 5% | 1/4W | |
| R15 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R16 | 1-215-477-00 | METAL | 220K | 1% | 1/6W | |
| R17 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R18 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R19 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R20 | 1-215-421-00 | METAL | 1K | 1% | 1/6W | |
| R21 | 1-215-421-00 | METAL | 1K | 1% | 1/6W | |
| R22 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R23 | 1-215-409-00 | METAL | 330 | 1% | 1/6W | |
| R24 | 1-215-380-00 | METAL | 20 | 1% | 1/6W | |
| R25 | 1-215-380-00 | METAL | 20 | 1% | 1/6W | |
| R26 | 1-215-409-00 | METAL | 330 | 1% | 1/6W | |
| R27 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R28 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R29 | 1-215-418-00 | METAL | 750 | 1% | 1/6W | |
| R30 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R31 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R32 | 1-249-420-11 | CARBON | 1.8K | 5% | 1/4W | |
| R33 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R34 | 1-249-428-11 | CARBON | 8.2K | 5% | 1/4W | |
| R35 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R36 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R37 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R40 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R41 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R42 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R43 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R44 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W | |
| R45 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W | |
| R46 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R47 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W | |
| R48 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R49 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R50 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R51 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R52 | 1-247-866-11 | CARBON | 30K | 5% | 1/4W | |
| R53 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R54 | 1-249-420-11 | CARBON | 1.8K | 5% | 1/4W | |
| R55 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| R56 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R57 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R58 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R59 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R61 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R62 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R63 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R64 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W |
| R65 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W |
| R66 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R67 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W |
| R68 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R69 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R70 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R71 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W |
| R72 | 1-247-866-11 | CARBON | 30K | 5% | 1/4W |
| R73 | 1-215-445-00 | METAL | 10K | 1% | 1/6W |
| R74 | 1-249-420-11 | CARBON | 1.8K | 5% | 1/4W |
| R75 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R76 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R77 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R78 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R79 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R80 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R81 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R82 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W |
| R83 | 1-249-420-11 | CARBON | 1.8K | 5% | 1/4W |
| R84 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R85 | 1-247-866-11 | CARBON | 30K | 5% | 1/4W |
| R86 | 1-215-445-00 | METAL | 10K | 1% | 1/6W |
| R87 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R88 | 1-215-430-00 | METAL | 2.4K | 1% | 1/6W |
| R89 | 1-215-443-00 | METAL | 8.2K | 1% | 1/6W |
| R90 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W |
| R91 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R92 | 1-247-830-11 | CARBON | 910 | 5% | 1/4W |
| R93 | 1-215-421-00 | METAL | 1K | 1% | 1/6W |
| R94 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R98 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R99 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R101 | 1-249-432-11 | CARBON | 18K | 5% | 1/4W |
| R102 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R103 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R104 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R105 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R106 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R107 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R108 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R109 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R110 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R111 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W |
| R112 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R113 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R114 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R115 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R116 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R117 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R118 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R119 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R120 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R161 | 1-215-438-00 | METAL | 5.1K | 1% | 1/6W |
| R162 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W |
| R163 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R164 | 1-215-435-00 | METAL | 3.9K | 1% | 1/6W |
| R165 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R166 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R167 | 1-215-409-00 | METAL | 330 | 1% | 1/6W |
| R168 | 1-215-411-00 | METAL | 390 | 1% | 1/6W |
| R169 | 1-215-427-00 | METAL | 1.8K | 1% | 1/6W |
| R170 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W |
| R171 | 1-215-436-00 | METAL | 4.3K | 1% | 1/6W |
| R172 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W |
| R173 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R174 | 1-215-435-00 | METAL | 3.9K | 1% | 1/6W |
| R175 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R176 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R177 | 1-215-409-00 | METAL | 330 | 1% | 1/6W |
| R178 | 1-215-414-00 | METAL | 510 | 1% | 1/6W |
| R179 | 1-215-422-00 | METAL | 1.1K | 1% | 1/6W |
| R180 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W |
| R181 | 1-215-380-00 | METAL | 20 | 1% | 1/6W |
| R182 | 1-215-380-00 | METAL | 20 | 1% | 1/6W |
| R183 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R184 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W |
| R185 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R201 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W |
| R202 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R203 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W |
| R204 | 1-247-872-11 | CARBON | 51K | 5% | 1/4W |

VARIABLE RESISTOR

| | | |
|---|---|---|
| RV1 | 1-237-514-21 | RES, ADJ, CERMET 500 |
| RV2 | 1-237-508-21 | RES, ADJ, CERMET 500K |
| RV3 | 1-237-498-21 | RES, ADJ, CERMET 200 |
| RV4 | 1-237-500-21 | RES, ADJ, CERMET 1K |
| RV5 | 1-237-500-21 | RES, ADJ, CERMET 1K |
| RV11 | 1-237-519-21 | RES, ADJ, CERMET 20K |
| RV12 | 1-237-519-21 | RES, ADJ, CERMET 20K |
| RV13 | 1-237-519-21 | RES, ADJ, CERMET 20K |
| RV14 | 1-237-519-21 | RES, ADJ, CERMET 20K |
| RV15 | 1-237-519-21 | RES, ADJ, CERMET 20K |
| RV16 | 1-237-519-21 | RES, ADJ, CERMET 20K |
| RV21 | 1-237-517-21 | RES, ADJ, CERMET 5K |
| RV22 | 1-237-517-21 | RES, ADJ, CERMET 5K |

SWITCH

| | | |
|---|---|---|
| S1 | 1-570-857-11 | SWITCH, SLIDE |

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*A-1135-359-A BH BOARD, COMPLETE
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| | | |
|---|---|---|
| *4-353-708-00 | HOOK, FINGER | |
| 7-682-547-04 | SCREW BVTT | 3X6 (S) |

CAPACITOR

| | | | | | |
|---|---|---|---|---|---|
| C1 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C2 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C3 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C4 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C5 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C6 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C7 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C8 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C9 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C10 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C11 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C12 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C13 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C14 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |

**BH**

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C15 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C16 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C17 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C18 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C20 | 1-123-382-00 | ELECT | 3.3MF | 20% | 50V |
| C21 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C22 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C23 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C24 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C26 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C41 | 1-124-122-11 | ELECT | 100MF | 20% | 16V |
| C42 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C43 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C44 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C45 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C50 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C51 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C52 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C53 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C54 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C55 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C71 | 1-124-122-11 | ELECT | 100MF | 20% | 16V |
| C72 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C73 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C74 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C80 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C81 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C82 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C83 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C84 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C85 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C86 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C101 | 1-161-021-11 | CERAMIC | 0.047MF | 10% | 25V |
| C102 | 1-102-942-00 | CERAMIC | 5PF | 0.5PF | 50V |
| C103 | 1-102-959-00 | CERAMIC | 22PF | 5% | 50V |
| C104 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C105 | 1-161-021-11 | CERAMIC | 0.047MF | 10% | 25V |
| C106 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C107 | 1-161-021-11 | CERAMIC | 0.047MF | 10% | 25V |
| C108 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C109 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C110 | 1-101-880-00 | CERAMIC | 47PF | 5% | 50V |
| C201 | 1-161-021-11 | CERAMIC | 0.047MF | 10% | 25V |
| C202 | 1-102-942-00 | CERAMIC | 5PF | 0.5PF | 50V |
| C203 | 1-102-959-00 | CERAMIC | 22PF | 5% | 50V |
| C204 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C205 | 1-161-021-11 | CERAMIC | 0.047MF | 10% | 25V |
| C206 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C207 | 1-161-021-11 | CERAMIC | 0.047MF | 10% | 25V |
| C208 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C209 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C210 | 1-101-880-00 | CERAMIC | 47PF | 5% | 50V |
| C301 | 1-161-021-11 | CERAMIC | 0.047MF | 10% | 25V |
| C302 | 1-102-942-00 | CERAMIC | 5PF | 0.5PF | 50V |
| C303 | 1-102-959-00 | CERAMIC | 22PF | 5% | 50V |
| C304 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C305 | 1-161-021-11 | CERAMIC | 0.047MF | 10% | 25V |
| C306 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C307 | 1-161-021-11 | CERAMIC | 0.047MF | 10% | 25V |
| C308 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C309 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C310 | 1-101-880-00 | CERAMIC | 47PF | 5% | 50V |
| | | COMBINATION PARTS | | | |
| CP17 | 1-232-096-00 | COMPOSITION CIRCUIT BLOCK | | | |

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| | | DIODE | |
| D1 | 8-719-911-19 | DIODE 1SS119 | |
| D101 | 8-719-911-19 | DIODE 1SS119 | |
| D102 | 8-719-911-19 | DIODE 1SS119 | |
| D201 | 8-719-911-19 | DIODE 1SS119 | |
| D202 | 8-719-911-19 | DIODE 1SS119 | |
| D301 | 8-719-911-19 | DIODE 1SS119 | |
| D302 | 8-719-911-19 | DIODE 1SS119 | |
| | | IC | |
| IC1 | 8-759-040-53 | IC MC14053BCP | |
| IC2 | 8-759-040-53 | IC MC14053BCP | |
| IC3 | 8-759-040-53 | IC MC14053BCP | |
| IC4 | 8-759-040-53 | IC MC14053BCP | |
| IC5 | 8-759-981-95 | IC RC4558S | |
| IC6 | 8-759-981-95 | IC RC4558S | |
| IC7 | 8-759-800-81 | IC LA7016 | |
| IC8 | 8-759-800-81 | IC LA7016 | |
| IC9 | 8-759-040-53 | IC MC14053BCP | |
| IC10 | 8-759-040-53 | IC MC14053BCP | |
| IC11 | 8-759-240-81 | IC TC40818P | |
| IC12 | 8-759-240-81 | IC TC40818P | |
| IC13 | 8-759-240-01 | IC TC4001BP | |
| IC14 | 8-759-207-73 | IC TC4030BPHB | |
| IC101 | 8-766-001-49 | TRANSISTOR TX-429M | |
| IC102 | 8-759-990-82 | IC TL082CP | |
| IC201 | 8-766-001-49 | TRANSISTOR TX-429M | |
| IC202 | 8-759-990-82 | IC TL082CP | |
| IC301 | 8-766-001-49 | TRANSISTOR TX-429M | |
| IC302 | 8-759-990-82 | IC TL082CP | |
| | | TRANSISTOR | |
| Q1 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q2 | 8-729-105-71 | TRANSISTOR 2SK523-K2 | |
| Q3 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q4 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q5 | 8-729-105-71 | TRANSISTOR 2SK523-K2 | |
| Q6 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q7 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q8 | 8-729-105-71 | TRANSISTOR 2SK523-K2 | |
| Q9 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q10 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q11 | 8-729-105-71 | TRANSISTOR 2SK523-K2 | |
| Q12 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q13 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q14 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q15 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q16 | 8-729-800-10 | TRANSISTOR 2SC3068 | |
| Q101 | 8-729-600-19 | TRANSISTOR 2SK381-A | |
| Q102 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q103 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q104 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q105 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q106 | 8-729-600-19 | TRANSISTOR 2SK381-A | |
| Q107 | 8-729-600-19 | TRANSISTOR 2SK381-A | |
| Q108 | 8-729-600-19 | TRANSISTOR 2SK381-A | |
| Q201 | 8-729-600-19 | TRANSISTOR 2SK381-A | |
| Q202 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q203 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q204 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q205 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q206 | 8-729-600-19 | TRANSISTOR 2SK381-A | |
| Q207 | 8-729-600-19 | TRANSISTOR 2SK381-A | |
| Q208 | 8-729-600-19 | TRANSISTOR 2SK381-A | |
| Q301 | 8-729-600-19 | TRANSISTOR 2SK381-A | |

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| Q302 | 8-729-384-48 | TRANSISTOR 2SA844-E | | | | |
| Q303 | 8-729-119-78 | TRANSISTOR 2SC403SPTP-5 | | | | |
| Q304 | 8-729-119-78 | TRANSISTOR 2SC403SPTP-5 | | | | |
| Q305 | 8-729-119-78 | TRANSISTOR 2SC403SPTP-5 | | | | |
| Q306 | 8-729-600-19 | TRANSISTOR 2SK381-A | | | | |
| Q307 | 8-729-600-19 | TRANSISTOR 2SK381-A | | | | |
| Q308 | 8-729-600-19 | TRANSISTOR 2SK381-A | | | | |

### RESISTOR

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R1 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R3 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | |
| R5 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R6 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R7 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R9 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | |
| R11 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R12 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R13 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R15 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | |
| R17 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R18 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R19 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R21 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | |
| R23 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R31 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R32 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R33 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R34 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R35 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R36 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R37 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R38 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R39 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R40 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R52 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R53 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R54 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R63 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R64 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R65 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R66 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R101 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R102 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W | |
| R103 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R104 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R105 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W | |
| R106 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R107 | 1-215-425-00 | METAL | 1.5K | 1% | 1/6W | |
| R108 | 1-249-415-11 | CARBON | 680 | 5% | 1/4W | |
| R109 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R110 | 1-215-427-00 | METAL | 1.8K | 1% | 1/6W | |
| R111 | 1-215-453-00 | METAL | 22K | 1% | 1/6W | |
| R112 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R113 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R114 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R115 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R116 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R117 | 1-215-493-00 | METAL | 1M | 1% | 1/6W | |
| R120 | 1-215-451-00 | METAL | 18K | 1% | 1/6W | |
| R121 | 1-215-453-00 | METAL | 22K | 1% | 1/6W | |
| R201 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R202 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W | |
| R203 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R204 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R205 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W | |
| R206 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R207 | 1-215-425-00 | METAL | 1.5K | 1% | 1/6W | |
| R208 | 1-249-415-11 | CARBON | 680 | 5% | 1/4W | |
| R209 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R210 | 1-215-427-00 | METAL | 1.8K | 1% | 1/6W | |
| R211 | 1-215-453-00 | METAL | 22K | 1% | 1/6W | |
| R212 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R213 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R214 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R215 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R216 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R217 | 1-215-455-00 | METAL | 27K | 1% | 1/6W | |
| R301 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R302 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W | |
| R303 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R304 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R305 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W | |
| R306 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R307 | 1-215-425-00 | METAL | 1.5K | 1% | 1/6W | |
| R308 | 1-249-415-11 | CARBON | 680 | 5% | 1/4W | |
| R309 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R310 | 1-215-427-00 | METAL | 1.8K | 1% | 1/6W | |
| R311 | 1-215-453-00 | METAL | 22K | 1% | 1/6W | |
| R312 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R313 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R314 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R315 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R316 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |

### VARIABLE RESISTOR

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| RV1 | 1-237-505-21 | RES, ADJ, CERMET 50K | |
| RV2 | 1-237-505-21 | RES, ADJ, CERMET 50K | |
| RV3 | 1-237-505-21 | RES, ADJ, CERMET 50K | |

### SWITCH

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| S1 | 1-570-857-11 | SWITCH, SLIDE | |
| S2 | 1-570-851-11 | SWITCH, SLIDE | |

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*A-1135-360-A BI BOARD, COMPLETE
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| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| | *4-353-708-00 | HOOK, FINGER | |
| | 7-682-547-04 | SCREW BVTT 3X6 (S) | |

### CAPACITOR

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| C1 | 1-130-481-00 | MYLAR | 0.0068MF | 5% | 50V | |
| C2 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V | |
| C3 | 1-123-369-00 | ELECT | 4.7MF | 20% | 25V | |
| C4 | 1-123-369-00 | ELECT | 4.7MF | 20% | 25V | |
| C5 | 1-102-973-00 | CERAMIC | 100PF | 5% | 50V | |
| C7 | 1-123-330-00 | ELECT | 22MF | 20% | 25V | |
| C8 | 1-123-369-00 | ELECT | 4.7MF | 20% | 25V | |
| C11 | 1-123-356-00 | ELECT | 10MF | 20% | 16V | |
| C12 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V | |
| C13 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V | |
| C14 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V | |
| C15 | 1-123-330-00 | ELECT | 22MF | 20% | 16V | |
| C16 | 1-123-356-00 | ELECT | 10MF | 20% | 16V | |
| C17 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V | |
| C18 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V | |
| C19 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V | |
| C41 | 1-124-034-51 | ELECT | 33MF | 20% | 16V | |
| C42 | 1-124-034-51 | ELECT | 33MF | 20% | 16V | |
| C43 | 1-124-034-51 | ELECT | 33MF | 20% | 16V | |

# BI

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C44 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C45 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C46 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C51 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C52 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C53 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C54 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C55 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C56 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C57 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C71 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C72 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C73 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C74 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C75 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C76 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C81 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C82 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C83 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C84 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C85 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C86 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C87 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C101 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C102 | 1-123-380-00 | ELECT | 1MF | 20% | 50V |
| C104 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C105 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C106 | 1-136-161-00 | FILM | 0.047MF | 5% | 50V |
| C107 | 1-102-937-00 | CERAMIC | 4PF | 0.25PF | 50V |
| C108 | 1-101-880-00 | CERAMIC | 47PF | 5% | 50V |
| C109 | 1-136-161-00 | FILM | 0.047MF | 5% | 50V |
| C110 | 1-136-161-00 | FILM | 0.047MF | 5% | 50V |
| C114 | 1-102-951-00 | CERAMIC | 15PF | 5% | 50V |
| C115 | 1-136-153-00 | FILM | 0.01MF | 5% | 50V |
| C116 | 1-102-973-00 | CERAMIC | 100PF | 5% | 50V |
| C117 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C118 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C119 | 1-102-953-00 | CERAMIC | 18PF | 5% | 50V |
| C120 | 1-102-038-00 | CERAMIC | 0.001MF | | 500V |
| C122 | 1-102-943-00 | CERAMIC | 6PF | 0.5PF | 50V |
| C201 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C202 | 1-123-380-00 | ELECT | 1MF | 20% | 50V |
| C204 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C205 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C206 | 1-136-161-00 | FILM | 0.047MF | 5% | 50V |
| C207 | 1-102-937-00 | CERAMIC | 4PF | 0.25PF | 50V |
| C208 | 1-101-880-00 | CERAMIC | 47PF | 5% | 50V |
| C209 | 1-136-161-00 | FILM | 0.047MF | 5% | 50V |
| C210 | 1-136-161-00 | FILM | 0.047MF | 5% | 50V |
| C214 | 1-102-951-00 | CERAMIC | 15PF | 5% | 50V |
| C215 | 1-136-153-00 | FILM | 0.01MF | 5% | 50V |
| C216 | 1-102-973-00 | CERAMIC | 100PF | 5% | 50V |
| C217 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C218 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C219 | 1-102-953-00 | CERAMIC | 18PF | 5% | 50V |
| C220 | 1-102-038-00 | CERAMIC | 0.001MF | | 500V |
| C222 | 1-102-943-00 | CERAMIC | 6PF | 0.5PF | 50V |
| C301 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C302 | 1-123-380-00 | ELECT | 1MF | 20% | 50V |
| C304 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C305 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C306 | 1-136-161-00 | FILM | 0.047MF | 5% | 50V |
| C307 | 1-102-937-00 | CERAMIC | 4PF | 0.25PF | 50V |
| C308 | 1-101-880-00 | CERAMIC | 47PF | 5% | 50V |
| C309 | 1-136-161-00 | FILM | 0.047MF | 5% | 50V |

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C310 | 1-136-161-00 | FILM | 0.047MF | 5% | 50V |
| C314 | 1-102-951-00 | CERAMIC | 15PF | 5% | 50V |
| C315 | 1-136-153-00 | FILM | 0.01MF | 5% | 50V |
| C316 | 1-102-973-00 | CERAMIC | 100PF | 5% | 50V |
| C317 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C318 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C319 | 1-102-953-00 | CERAMIC | 18PF | 5% | 50V |
| C320 | 1-102-038-00 | CERAMIC | 0.001MF | | 500V |
| C322 | 1-102-943-00 | CERAMIC | 6PF | 0.5PF | 50V |

## DIODE

| | | |
|---|---|---|
| D1 | 8-719-911-19 | DIODE 1SS119 |
| D2 | 8-719-911-19 | DIODE 1SS119 |
| D4 | 8-719-911-19 | DIODE 1SS119 |
| D5 | 8-719-911-19 | DIODE 1SS119 |
| D6 | 8-719-110-31 | DIODE RD12ES-B2 |
| D7 | 8-719-911-19 | DIODE 1SS119 |
| D8 | 8-719-911-19 | DIODE 1SS119 |
| D101 | 8-719-911-19 | DIODE 1SS119 |
| D102 | 8-719-016-42 | DIODE MC932 |
| D103 | 8-719-109-74 | DIODE RD4.3ES-B1 |
| D104 | 8-719-911-19 | DIODE 1SS119 |
| D105 | 8-719-109-93 | DIODE RD6.2ES-B2 |
| D201 | 8-719-911-19 | DIODE 1SS119 |
| D202 | 8-719-016-42 | DIODE MC932 |
| D203 | 8-719-109-74 | DIODE RD4.3ES-B1 |
| D204 | 8-719-911-19 | DIODE 1SS119 |
| D205 | 8-719-109-93 | DIODE RD6.2ES-B2 |
| D301 | 8-719-911-19 | DIODE 1SS119 |
| D302 | 8-719-016-42 | DIODE MC932 |
| D303 | 8-719-109-74 | DIODE RD4.3ES-B1 |
| D304 | 8-719-911-19 | DIODE 1SS119 |
| D305 | 8-719-109-93 | DIODE RD6.2ES-B2 |

## IC

| | | |
|---|---|---|
| IC1 | 8-759-945-58 | IC RC4558P |
| IC101 | 8-759-040-53 | IC MC14053BCP |
| IC102 | 8-766-001-49 | TRANSISTOR TX-429M |
| IC103 | 8-759-990-82 | IC TL082CP |
| IC104 | 8-759-990-82 | IC TL082CP |
| IC105 | 8-759-990-82 | IC TL082CP |
| IC201 | 8-759-040-53 | IC MC14053BCP |
| IC202 | 8-766-001-49 | TRANSISTOR TX-429M |
| IC203 | 8-759-990-82 | IC TL082CP |
| IC204 | 8-759-990-82 | IC TL082CP |
| IC205 | 8-759-990-82 | IC TL082CP |
| IC301 | 8-759-040-53 | IC MC14053BCP |
| IC302 | 8-766-001-49 | TRANSISTOR TX-429M |
| IC303 | 8-759-990-82 | IC TL082CP |
| IC304 | 8-759-990-82 | IC TL082CP |
| IC305 | 8-759-990-82 | IC TL082CP |

## TRANSISTOR

| | | |
|---|---|---|
| Q1 | 8-729-900-74 | TRANSISTOR DTC143TS |
| Q2 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q3 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q11 | 8-729-201-05 | TRANSISTOR 2SC2878-B |
| Q12 | 8-729-201-05 | TRANSISTOR 2SC2878-B |
| Q13 | 8-729-201-05 | TRANSISTOR 2SC2878-B |
| Q14 | 8-729-201-05 | TRANSISTOR 2SC2878-B |
| Q15 | 8-729-900-65 | TRANSISTOR DTA144ES |
| Q101 | 8-729-384-48 | TRANSISTOR 2SA844-E |
| Q102 | 8-729-384-48 | TRANSISTOR 2SA844-E |
| Q103 | 8-729-384-48 | TRANSISTOR 2SA844-E |
| Q105 | 8-729-600-19 | TRANSISTOR 2SK381-A |

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| Q106 | 8-729-384-48 | TRANSISTOR 2SA844-E | | | | |
| Q107 | 8-729-266-82 | TRANSISTOR 2SC2668-O | | | | |
| Q108 | 8-729-384-48 | TRANSISTOR 2SA844-E | | | | |
| Q109 | 8-729-600-19 | TRANSISTOR 2SK381-A | | | | |
| Q110 | 8-729-600-19 | TRANSISTOR 2SK381-A | | | | |
| Q113 | 8-729-600-19 | TRANSISTOR 2SK381-A | | | | |
| Q114 | 8-729-200-17 | TRANSISTOR 2SA1091-O | | | | |
| Q201 | 8-729-384-48 | TRANSISTOR 2SA844-E | | | | |
| Q202 | 8-729-384-48 | TRANSISTOR 2SA844-E | | | | |
| Q203 | 8-729-384-48 | TRANSISTOR 2SA844-E | | | | |
| Q205 | 8-729-600-19 | TRANSISTOR 2SK381-A | | | | |
| Q206 | 8-729-384-48 | TRANSISTOR 2SA844-E | | | | |
| Q207 | 8-729-266-82 | TRANSISTOR 2SC2668-O | | | | |
| Q208 | 8-729-384-48 | TRANSISTOR 2SA844-E | | | | |
| Q209 | 8-729-600-19 | TRANSISTOR 2SK381-A | | | | |
| Q210 | 8-729-600-19 | TRANSISTOR 2SK381-A | | | | |
| Q213 | 8-729-600-19 | TRANSISTOR 2SK381-A | | | | |
| Q214 | 8-729-200-17 | TRANSISTOR 2SA1091-O | | | | |
| Q301 | 8-729-384-48 | TRANSISTOR 2SA844-E | | | | |
| Q302 | 8-729-384-48 | TRANSISTOR 2SA844-E | | | | |
| Q303 | 8-729-384-48 | TRANSISTOR 2SA844-E | | | | |
| Q305 | 8-729-600-19 | TRANSISTOR 2SK381-A | | | | |
| Q306 | 8-729-384-48 | TRANSISTOR 2SA844-E | | | | |
| Q307 | 8-729-266-82 | TRANSISTOR 2SC2668-O | | | | |
| Q308 | 8-729-384-48 | TRANSISTOR 2SA844-E | | | | |
| Q309 | 8-729-600-19 | TRANSISTOR 2SK381-A | | | | |
| Q310 | 8-729-600-19 | TRANSISTOR 2SK381-A | | | | |
| Q313 | 8-729-600-19 | TRANSISTOR 2SK381-A | | | | |
| Q314 | 8-729-200-17 | TRANSISTOR 2SA1091-O | | | | |
| | | RESISTOR | | | | |
| R1 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R2 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R3 | 1-215-493-00 | METAL | 1M | 1% | 1/6W | |
| R4 | 1-215-469-00 | METAL | 100K | 1% | 1/6W | |
| R5 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R8 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R9 | 1-249-424-11 | CARBON | 3.9K | 5% | 1/4W | |
| R10 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R11 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R12 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R13 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R14 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R15 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R23 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R24 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R25 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R31 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R32 | 1-249-436-11 | CARBON | 39K | 5% | 1/4W | |
| R33 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R51 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R52 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R53 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R54 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W | |
| R55 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R56 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W | |
| R57 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W | |
| R58 | 1-249-439-11 | CARBON | 68K | 5% | 1/4W | |
| R60 | 1-215-465-00 | METAL | 68K | 1% | 1/6W | |
| R61 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R101 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R102 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R104 | 1-215-469-00 | METAL | 100K | 1% | 1/6W | |
| R105 | 1-215-477-00 | METAL | 220K | 1% | 1/6W | |
| R106 | 1-215-427-00 | METAL | 1.8K | 1% | 1/6W | |
| R107 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R108 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R109 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R110 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R111 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R112 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R113 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R114 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R115 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R116 | 1-249-424-11 | CARBON | 3.9K | 5% | 1/4W | |
| R117 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R118 | 1-215-421-00 | METAL | 1K | 1% | 1/6W | |
| R119 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R120 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R121 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W | |
| R122 | 1-215-427-00 | METAL | 1.8K | 1% | 1/6W | |
| R123 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R124 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R125 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R127 | 1-215-453-00 | METAL | 22K | 1% | 1/6W | |
| R128 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R136 | 1-215-477-00 | METAL | 220K | 1% | 1/6W | |
| R137 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R138 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R140 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R141 | 1-215-469-00 | METAL | 100K | 1% | 1/6W | |
| R142 | 1-215-455-00 | METAL | 27K | 1% | 1/6W | |
| R143 | 1-215-488-00 | METAL | 620K | 1% | 1/6W | |
| R144 | 1-249-434-11 | CARBON | 27K | 5% | 1/4W | |
| R146 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R147 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R201 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R202 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R204 | 1-215-469-00 | METAL | 100K | 1% | 1/6W | |
| R205 | 1-215-477-00 | METAL | 220K | 1% | 1/6W | |
| R206 | 1-215-427-00 | METAL | 1.8K | 1% | 1/6W | |
| R207 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R208 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R209 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R210 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R211 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R212 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R213 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R214 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R215 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R216 | 1-249-424-11 | CARBON | 3.9K | 5% | 1/4W | |
| R217 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R218 | 1-215-421-00 | METAL | 1K | 1% | 1/6W | |
| R219 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R220 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R221 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W | |
| R222 | 1-215-427-00 | METAL | 1.8K | 1% | 1/6W | |
| R223 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R224 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R225 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R227 | 1-215-453-00 | METAL | 22K | 1% | 1/6W | |
| R228 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R236 | 1-215-477-00 | METAL | 220K | 1% | 1/6W | |
| R237 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R238 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R240 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R241 | 1-215-469-00 | METAL | 100K | 1% | 1/6W | |
| R242 | 1-215-455-00 | METAL | 27K | 1% | 1/6W | |
| R243 | 1-215-488-00 | METAL | 620K | 1% | 1/6W | |
| R244 | 1-249-434-11 | CARBON | 27K | 5% | 1/4W | |
| R246 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |

**BI** **BJ**

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| R247 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R301 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W |
| R302 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R304 | 1-215-469-00 | METAL | 100K | 1% | 1/6W |
| R305 | 1-215-477-00 | METAL | 220K | 1% | 1/6W |
| R306 | 1-215-427-00 | METAL | 1.8K | 1% | 1/6W |
| R307 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W |
| R308 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W |
| R309 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R310 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W |
| R311 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R312 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R313 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W |
| R314 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W |
| R315 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W |
| R316 | 1-249-424-11 | CARBON | 3.9K | 5% | 1/4W |
| R317 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W |
| R318 | 1-215-421-00 | METAL | 1K | 1% | 1/6W |
| R319 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R320 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R321 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W |
| R322 | 1-215-427-00 | METAL | 1.8K | 1% | 1/6W |
| R323 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R324 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R325 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R327 | 1-215-453-00 | METAL | 22K | 1% | 1/6W |
| R328 | 1-215-445-00 | METAL | 10K | 1% | 1/6W |
| R336 | 1-215-477-00 | METAL | 220K | 1% | 1/6W |
| R337 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R338 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W |
| R340 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R341 | 1-215-469-00 | METAL | 100K | 1% | 1/6W |
| R342 | 1-215-455-00 | METAL | 27K | 1% | 1/6W |
| R343 | 1-215-488-00 | METAL | 620K | 1% | 1/6W |
| R344 | 1-249-434-11 | CARBON | 27K | 5% | 1/4W |
| R346 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R347 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |

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*A-1135-361-A BJ BOARD, COMPLETE
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*4-353-708-00 HOOK, FINGER
7-682-547-04 SCREW BVTT 3X6 (S)

CAPACITOR

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C1 | 1-101-361-00 | CERAMIC | 150PF | 5% | 50V |
| C2 | 1-101-361-00 | CERAMIC | 150PF | 5% | 50V |
| C4 | 1-102-821-00 | CERAMIC | 360PF | 5% | 50V |
| C5 | 1-130-473-00 | MYLAR | 0.0015MF | 5% | 50V |
| C11 | 1-104-302-11 | POLYSTYRENE | 0.001MF | 5% | 50V |
| C12 | 1-101-888-00 | CERAMIC | 68PF | 5% | 50V |
| C14 | 1-101-888-00 | CERAMIC | 68PF | 5% | 50V |
| C15 | 1-101-888-00 | CERAMIC | 68PF | 5% | 50V |
| C16 | 1-101-888-00 | CERAMIC | 68PF | 5% | 50V |
| C17 | 1-101-888-00 | CERAMIC | 68PF | 5% | 50V |
| C18 | 1-104-302-11 | POLYSTYRENE | 0.001MF | 5% | 50V |
| C19 | 1-102-973-00 | CERAMIC | 100PF | 5% | 50V |
| C20 | 1-101-888-00 | CERAMIC | 68PF | 5% | 50V |
| C21 | 1-101-361-00 | CERAMIC | 150PF | 5% | 50V |
| C22 | 1-101-890-00 | CERAMIC | 75PF | 5% | 50V |
| C23 | 1-102-965-00 | CERAMIC | 39PF | 5% | 50V |
| C25 | 1-102-811- | CERAMIC | 9PF | 1PF | 50V |
| C26 | 1-102-944-00 | CERAMIC | 7PF | 1PF | 50V |
| C27 | 1-101-361-00 | CERAMIC | 150PF | 5% | 50V |
| C28 | 1-130-471-00 | MYLAR | 0.001MF | 5% | 50V |
| C29 | 1-130-471-00 | MYLAR | 0.001MF | 5% | 50V |
| C30 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C31 | 1-101-361-00 | CERAMIC | 150PF | 5% | 50V |
| C32 | 1-101-361-00 | CERAMIC | 150PF | 5% | 50V |
| C33 | 1-101-361-00 | CERAMIC | 150PF | 5% | 50V |
| C34 | 1-101-361-00 | CERAMIC | 150PF | 5% | 50V |
| C35 | 1-130-471-00 | MYLAR | 0.001MF | 5% | 50V |
| C36 | 1-102-824-00 | CERAMIC | 470PF | 5% | 50V |
| C37 | 1-123-380-00 | ELECT | 1MF | 20% | 50V |
| C38 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C39 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C40 | 1-102-074-00 | CERAMIC | 0.001MF | 10% | 50V |
| C61 | 1-101-888-00 | CERAMIC | 68PF | 5% | 50V |
| C62 | 1-101-880-00 | CERAMIC | 47PF | 5% | 50V |
| C63 | 1-101-888-00 | CERAMIC | 68PF | 5% | 50V |
| C64 | 1-101-880-00 | CERAMIC | 47PF | 5% | 50V |
| C65 | 1-102-820-00 | CERAMIC | 330PF | 5% | 50V |
| C66 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C67 | 1-101-880-00 | CERAMIC | 47PF | 5% | 50V |
| C100 | 1-123-332-00 | ELECT | 47MF | 20% | 16V |
| C102 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C106 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C108 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C109 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C110 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C111 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C112 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C113 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C114 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C115 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C116 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C117 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C118 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C120 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C121 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C122 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C130 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |

DIODE

| Ref.No | Part No. | Description |
|---|---|---|
| D1 | 8-719-911-19 | DIODE 1SS119 |
| D2 | 8-719-911-19 | DIODE 1SS119 |
| D3 | 8-719-911-19 | DIODE 1SS119 |
| D7 | 8-719-911-19 | DIODE 1SS119 |
| D8 | 8-719-911-19 | DIODE 1SS119 |
| D9 | 8-719-911-19 | DIODE 1SS119 |
| D11 | 8-719-016-42 | DIODE MC932 |

IC

| Ref.No | Part No. | Description |
|---|---|---|
| IC1 | 8-759-345-38 | IC HD14538BP |
| IC2 | 8-759-240-01 | IC TC4001BP |
| IC3 | 8-759-240-40 | IC TC4040BP |
| IC4 | 8-759-240-40 | IC TC4040BP |
| IC5 | 8-759-000-35 | IC MC14027BCP |
| IC6 | 8-759-000-35 | IC MC14027BCP |
| IC7 | 8-759-000-35 | IC MC14027BCP |
| IC8 | 8-759-000-35 | IC MC14027BCP |
| IC9 | 8-759-000-35 | IC MC14027BCP |
| IC10 | 8-759-345-38 | IC HD14538BP |
| IC11 | 8-759-345-38 | IC HD14538BP |
| IC12 | 8-759-345-38 | IC HD14538BP |
| IC13 | 8-759-240-01 | IC TC4001BP |
| IC14 | 8-759-240-01 | IC TC4001BP |
| IC15 | 8-759-240-71 | IC TC4071BP |
| IC16 | 8-759-140-11 | IC TC4011BP |

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| IC17 | 8-759-240-11 | IC TC4011BP | |
| IC18 | 8-759-000-32 | IC MC14023BCP | |
| IC19 | 8-759-240-81 | IC TC4081BP | |
| IC20 | 8-759-240-81 | IC TC4081BP | |
| IC21 | 8-759-240-71 | IC TC4071BP | |
| IC22 | 8-759-240-71 | IC TC4071BP | |
| IC22 | 8-759-240-71 | IC TC4071BP | |
| IC23 | 8-759-040-73 | IC MC14073BCP | |
| IC24 | 8-759-000-51 | IC MC14069UBC | |
| IC25 | 8-759-000-51 | IC MC14069UBC | |
| IC26 | 8-759-041-75 | IC MC14175BCP | |
| IC27 | 8-759-140-53 | IC UPD4053BCP | |
| IC28 | 8-759-208-04 | IC TC4520BP | |
| IC29 | 8-759-345-38 | IC HD14538BP | |

### COIL

| | | | |
|---|---|---|---|
| L1 | 1-408-098-00 | INDUCTOR | 560UH |
| L2 | 1-408-098-00 | INDUCTOR | 560UH |
| L3 | 1-408-100-00 | INDUCTOR | 680UH |

### TRANSISTOR

| | | |
|---|---|---|
| Q14 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q15 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q16 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q17 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q18 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q19 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE |
| Q20 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q21 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q22 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q23 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE |
| Q24 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q25 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q26 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |

### RESISTOR

| | | | | | |
|---|---|---|---|---|---|
| R2 | 1-215-439-00 | METAL | 5.6K | 1% | 1/6W |
| R3 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R4 | 1-215-449-00 | METAL | 15K | 1% | 1/6W |
| R5 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W |
| R6 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W |
| R7 | 1-215-439-00 | METAL | 5.6K | 1% | 1/6W |
| R37 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W |
| R38 | 1-215-454-00 | METAL | 24K | 1% | 1/6W |
| R39 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R42 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R43 | 1-247-876-11 | CARBON | 75K | 5% | 1/4W |
| R44 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R45 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W |
| R46 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W |
| R47 | 1-247-862-11 | CARBON | 20K | 5% | 1/4W |
| R48 | 1-215-467-00 | METAL | 82K | 1% | 1/6W |
| R49 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R50 | 1-215-469-00 | METAL | 100K | 1% | 1/6W |
| R51 | 1-215-445-00 | METAL | 10K | 1% | 1/6W |
| R52 | 1-247-885-00 | CARBON | 180K | 5% | 1/4W |
| R53 | 1-215-449-00 | METAL | 15K | 1% | 1/6W |
| R54 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R56 | 1-249-434-11 | CARBON | 27K | 5% | 1/4W |
| R57 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W |
| R58 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W |
| R59 | 1-247-836-11 | CARBON | 1.6K | 5% | 1/4W |
| R60 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W |
| R61 | 1-215-449-00 | METAL | 15K | 1% | 1/6W |
| R62 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R63 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W |

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R64 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R65 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R66 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R67 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R68 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R69 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R70 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R71 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R72 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R74 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R75 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R76 | 1-215-463-00 | METAL | 56K | 1% | 1/6W | |
| R77 | 1-215-475-00 | METAL | 180K | 1% | 1/6W | |
| R78 | 1-215-439-00 | METAL | 5.6K | 1% | 1/6W | |
| R79 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R80 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R81 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R82 | 1-249-415-11 | CARBON | 680 | 5% | 1/4W | |
| R83 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R85 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R87 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R89 | 1-247-887-00 | CARBON | 220K | 5% | 1/4W | |
| R90 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R91 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R92 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R93 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R94 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R95 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R96 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R100 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W | |
| R111 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | |
| R112 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R113 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R114 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R115 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R116 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | |
| R117 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R118 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R119 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R120 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R121 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R122 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R123 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W | |
| R124 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R125 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R126 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R127 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R128 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R129 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |

### VARIABLE RESISTOR

| | | |
|---|---|---|
| RV1 | 1-237-504-21 | RES, ADJ, CERMET 20K |
| RV3 | 1-237-504-21 | RES, ADJ, CERMET 20K |
| RV4 | 1-237-503-21 | RES, ADJ, CERMET 10K |
| RV5 | 1-237-506-21 | RES, ADJ, CERMET 100K |
| RV6 | 1-237-505-21 | RES, ADJ, CERMET 50K |
| RV7 | 1-237-504-21 | RES, ADJ, CERMET 20K |
| RV8 | 1-237-504-21 | RES, ADJ, CERMET 20K |
| RV9 | 1-237-505-21 | RES, ADJ, CERMET 50K |

### SWITCH

| | | |
|---|---|---|
| S1 | 1-570-857-11 | SWITCH, SLIDE |

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## BK

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | *A-1135-362-A | BK BOARD, COMPLETE | | | |
| | | *************** | | | |
| | *2-365-226-00 | HEAT SINK | | | |
| | *4-352-844-01 | PIN, LEAD, COATING | | | |
| | 4-370-970-01 | SPACER, TR | | | |
| | *4-379-411-01 | RETAINER (BK), TR | | | |
| | *4-902-345-01 | HEAT SINK | | | |
| | 7-682-948-01 | SCREW PSW 3X8 | | | |
| | 7-685-646-79 | SCREW BVTP 3X8 TYPE2 IT-3 | | | |

### CONNECTOR

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| BK1 | *1-566-056-11 | PIN, CONNECTOR 4P | | | |
| BK2 | *1-566-056-11 | PIN, CONNECTOR 4P | | | |
| BK3 | *1-566-056-11 | PIN, CONNECTOR 4P | | | |
| BK4 | *1-566-055-11 | PIN, CONNECTOR 3P | | | |
| BK5 | *1-566-057-11 | PIN, CONNECTOR 5P | | | |
| BK6 | *1-566-043-11 | PIN, CONNECTOR 4P | | | |
| BK7 | *1-566-043-11 | PIN, CONNECTOR 4P | | | |
| BK8 | *1-566-043-11 | PIN, CONNECTOR 4P | | | |

### CAPACITOR

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C1 | 1-130-483-00 | MYLAR | 0.01MF | 5% | 50V |
| C10 | 1-124-046-00 | ELECT | 10MF | 20% | 160V |
| C11 | 1-130-483-00 | MYLAR | 0.01MF | 5% | 50V |
| C51 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C52 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C53 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C54 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C55 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C56 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C64 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C65 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C66 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C67 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C68 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C69 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C70 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C71 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C72 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C73 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C74 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C75 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C76 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C80 | 1-124-046-00 | ELECT | 10MF | 20% | 160V |
| C81 | 1-124-046-00 | ELECT | 10MF | 20% | 160V |
| C82 | 1-124-046-00 | ELECT | 10MF | 20% | 160V |
| C83 | 1-123-939-00 | ELECT | 10MF | 20% | 200V |
| C84 | 1-123-939-00 | ELECT | 10MF | 20% | 200V |
| C85 | 1-123-939-00 | ELECT | 10MF | 20% | 200V |
| C86 | 1-123-939-00 | ELECT | 10MF | 20% | 200V |
| C87 | 1-123-939-00 | ELECT | 10MF | 20% | 200V |
| C88 | 1-123-939-00 | ELECT | 10MF | 20% | 200V |
| C91 | 1-102-050-00 | CERAMIC | 0.01MF | 99% | 500V |
| C92 | 1-102-050-00 | CERAMIC | 0.01MF | 99% | 500V |
| C93 | 1-102-050-00 | CERAMIC | 0.01MF | 99% | 500V |
| C100 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C102 | 1-124-046-00 | ELECT | 10MF | 20% | 160V |
| C103 | 1-102-976-00 | CERAMIC | 180PF | 5% | 50V |
| C104 | 1-136-110-00 | FILM | 0.91MF | 5% | 200V |
| C105 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C106 | 1-123-332-00 | ELECT | 47MF | 20% | 25V |
| C107 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C108 | 1-106-371-00 | MYLAR | 0.015MF | 10% | 200V |
| C109 | 1-124-046-00 | ELECT | 10MF | 20% | 160V |

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C110 | 1-102-973-00 | CERAMIC | 100PF | 5% | 50V |
| C111 | 1-102-965-00 | CERAMIC | 39PF | 5% | 50V |
| C112 | 1-102-942-00 | CERAMIC | 5PF | 1PF | 50V |
| C114 | 1-102-936-00 | CERAMIC | 3PF | 0.25PF | 50V |
| C115 | 1-101-880-00 | CERAMIC | 47PF | 5% | 50V |
| C133 | 1-102-942-00 | CERAMIC | 5PF | 1PF | 50V |
| C200 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C202 | 1-124-046-00 | ELECT | 10MF | 20% | 160V |
| C203 | 1-102-976-00 | CERAMIC | 180PF | 5% | 50V |
| C204 | 1-136-110-00 | FILM | 0.91MF | 5% | 200V |
| C205 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C206 | 1-123-332-00 | ELECT | 47MF | 20% | 25V |
| C207 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C208 | 1-106-371-00 | MYLAR | 0.015MF | 10% | 200V |
| C209 | 1-124-046-00 | ELECT | 10MF | 20% | 160V |
| C210 | 1-102-973-00 | CERAMIC | 100PF | 5% | 50V |
| C211 | 1-102-965-00 | CERAMIC | 39PF | 5% | 50V |
| C212 | 1-102-942-00 | CERAMIC | 5PF | 1PF | 50V |
| C214 | 1-102-936-00 | CERAMIC | 3PF | 0.25PF | 50V |
| C215 | 1-101-880-00 | CERAMIC | 47PF | 5% | 50V |
| C233 | 1-102-942-00 | CERAMIC | 5PF | 1PF | 50V |
| C300 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C302 | 1-124-046-00 | ELECT | 10MF | 20% | 160V |
| C303 | 1-102-976-00 | CERAMIC | 180PF | 5% | 50V |
| C304 | 1-136-110-00 | FILM | 0.91MF | 5% | 200V |
| C305 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C306 | 1-123-332-00 | ELECT | 47MF | 20% | 25V |
| C307 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C308 | 1-106-371-00 | MYLAR | 0.015MF | 10% | 200V |
| C309 | 1-124-046-00 | ELECT | 10MF | 20% | 160V |
| C310 | 1-102-973-00 | CERAMIC | 100PF | 5% | 50V |
| C311 | 1-102-965-00 | CERAMIC | 39PF | 5% | 50V |
| C312 | 1-102-942-00 | CERAMIC | 5PF | 1PF | 50V |
| C314 | 1-102-936-00 | CERAMIC | 3PF | 0.25PF | 50V |
| C315 | 1-101-880-00 | CERAMIC | 47PF | 5% | 50V |
| C333 | 1-102-942-00 | CERAMIC | 5PF | 1PF | 50V |

### TRIMMER

| Ref.No | Part No. | Description |
|---|---|---|
| CV101 | 1-141-179-12 | CAP, VAR, TRIMMER |
| CV102 | 1-141-171-00 | CAP,TRIMMER 15P |
| CV201 | 1-141-179-12 | CAP, VAR, TRIMMER |
| CV202 | 1-141-171-00 | CAP,TRIMMER 15P |
| CV301 | 1-141-179-12 | CAP, VAR, TRIMMER |
| CV302 | 1-141-171-00 | CAP,TRIMMER 15P |

### DIODE

| Ref.No | Part No. | Description |
|---|---|---|
| D1 | 8-719-911-19 | DIODE 1SS119 |
| D2 | 8-719-911-19 | DIODE 1SS119 |
| D101 | 8-719-911-19 | DIODE 1SS119 |
| D102 | 8-719-911-19 | DIODE 1SS119 |
| D103 | 8-719-911-19 | DIODE 1SS119 |
| D104 | 8-719-911-19 | DIODE 1SS119 |
| D105 | 8-719-911-19 | DIODE 1SS119 |
| D106 | 8-719-911-19 | DIODE 1SS119 |
| D107 | 8-719-911-19 | DIODE 1SS119 |
| D108 | 8-719-911-19 | DIODE 1SS119 |
| D109 | 8-719-901-83 | DIODE 1SS83 |
| D110 | 8-719-300-80 | DIODE RU-C |
| D111 | 8-719-300-80 | DIODE RU-C |
| D112 | 8-719-911-19 | DIODE 1SS119 |
| D113 | 8-719-911-19 | DIODE 1SS119 |
| D114 | 8-719-911-19 | DIODE 1SS119 |
| D115 | 8-719-911-19 | DIODE 1SS119 |
| D116 | 8-719-911-19 | DIODE 1SS119 |
| D201 | 8-719-911-19 | DIODE 1SS119 |

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| D202 | 8-719-911-19 | DIODE 1SS119 | |
| D203 | 8-719-911-19 | DIODE 1SS119 | |
| D204 | 8-719-911-19 | DIODE 1SS119 | |
| D205 | 8-719-911-19 | DIODE 1SS119 | |
| D206 | 8-719-911-19 | DIODE 1SS119 | |
| D207 | 8-719-911-19 | DIODE 1SS119 | |
| D208 | 8-719-911-19 | DIODE 1SS119 | |
| D209 | 8-719-901-83 | DIODE 1SS83 | |
| D210 | 8-719-300-80 | DIODE RU-C | |
| D211 | 8-719-300-80 | DIODE RU-C | |
| D212 | 8-719-911-19 | DIODE 1SS119 | |
| D213 | 8-719-911-19 | DIODE 1SS119 | |
| D214 | 8-719-911-19 | DIODE 1SS119 | |
| D215 | 8-719-911-19 | DIODE 1SS119 | |
| D216 | 8-719-911-19 | DIODE 1SS119 | |
| D301 | 8-719-911-19 | DIODE 1SS119 | |
| D302 | 8-719-911-19 | DIODE 1SS119 | |
| D303 | 8-719-911-19 | DIODE 1SS119 | |
| D304 | 8-719-911-19 | DIODE 1SS119 | |
| D305 | 8-719-911-19 | DIODE 1SS119 | |
| D306 | 8-719-911-19 | DIODE 1SS119 | |
| D307 | 8-719-911-19 | DIODE 1SS119 | |
| D308 | 8-719-911-19 | DIODE 1SS119 | |
| D309 | 8-719-901-83 | DIODE 1SS83 | |
| D310 | 8-719-300-80 | DIODE RU-C | |
| D311 | 8-719-300-80 | DIODE RU-C | |
| D312 | 8-719-911-19 | DIODE 1SS119 | |
| D313 | 8-719-911-19 | DIODE 1SS119 | |
| D314 | 8-719-911-19 | DIODE 1SS119 | |
| D315 | 8-719-911-19 | DIODE 1SS119 | |
| D316 | 8-719-911-19 | DIODE 1SS119 | |

IC

| | | | |
|---|---|---|---|
| IC1 | 8-759-945-58 | IC RC4558P | |

TRANSISTOR

| | | | |
|---|---|---|---|
| Q1 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q12 | 8-729-200-17 | TRANSISTOR 2SA1091-O | |
| Q13 | 8-729-200-17 | TRANSISTOR 2SA1091-O | |
| Q101 | 8-729-266-82 | TRANSISTOR 2SC2668-B | |
| Q102 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q103 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q104 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q105 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q106 | 8-729-804-63 | TRANSISTOR 2SA1406-E | |
| Q107 | 8-729-804-58 | TRANSISTOR 2SC3600-E | |
| Q108 | 8-729-804-58 | TRANSISTOR 2SC3600-E | |
| Q109 | 8-729-804-63 | TRANSISTOR 2SA1406-E | |
| Q110 | 8-729-804-58 | TRANSISTOR 2SC3600-E | |
| Q111 | 8-729-804-63 | TRANSISTOR 2SA1406-E | |
| Q112 | 8-729-255-12 | TRANSISTOR 2SC2551-O | |
| Q113 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q114 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q115 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q201 | 8-729-266-82 | TRANSISTOR 2SC2668-B | |
| Q202 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q203 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q204 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q205 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q206 | 8-729-804-63 | TRANSISTOR 2SA1406-E | |
| Q207 | 8-729-804-58 | TRANSISTOR 2SC3600-E | |
| Q208 | 8-729-804-58 | TRANSISTOR 2SC3600-E | |
| Q209 | 8-729-804-63 | TRANSISTOR 2SA1406-E | |
| Q210 | 8-729-804-58 | TRANSISTOR 2SC3600-E | |
| Q211 | 8-729-804-63 | TRANSISTOR 2SA1406-E | |

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| Q212 | 8-729-255-12 | TRANSISTOR 2SC2551-O | |
| Q213 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q214 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q215 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q301 | 8-729-266-82 | TRANSISTOR 2SC2668-B | |
| Q302 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q303 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q304 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q305 | 8-729-384-48 | TRANSISTOR 2SA844-E | |
| Q306 | 8-729-804-63 | TRANSISTOR 2SA1406-E | |
| Q307 | 8-729-804-58 | TRANSISTOR 2SC3600-E | |
| Q308 | 8-729-804-58 | TRANSISTOR 2SC3600-E | |
| Q309 | 8-729-804-63 | TRANSISTOR 2SA1406-E | |
| Q310 | 8-729-804-58 | TRANSISTOR 2SC3600-E | |
| Q311 | 8-729-804-63 | TRANSISTOR 2SA1406-E | |
| Q312 | 8-729-255-12 | TRANSISTOR 2SC2551-O | |
| Q313 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q314 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q315 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |

RESISTOR

| | | | | | | |
|---|---|---|---|---|---|---|
| R1 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R2 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R3 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R10 | 1-215-878-00 | METAL OXIDE | 33K | 5% | 1W | F |
| R11 | 1-249-439-11 | CARBON | 68K | 5% | 1/4W | |
| R12 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R13 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R14 | 1-215-469-00 | METAL | 100K | 1% | 1/6W | |
| R15 | 1-215-461-00 | METAL | 47K | 1% | 1/6W | |
| R16 | 1-215-447-00 | METAL | 12K | 1% | 1/6W | |
| R101 | 1-215-391-00 | METAL | 56 | 1% | 1/6W | |
| R102 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R104 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R105 | 1-249-424-11 | CARBON | 3.9K | 5% | 1/4W | |
| R106 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R107 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R108 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R109 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R110 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R111 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R112 | 1-215-391-00 | METAL | 56 | 1% | 1/6W | |
| R113 | 1-215-391-00 | METAL | 56 | 1% | 1/6W | |
| R114 | 1-215-437-00 | METAL | 4.7K | 1% | 1/6W | |
| R115 | 1-214-765-00 | METAL | 33K | 1% | 1/4W | |
| R116 | 1-214-765-00 | METAL | 33K | 1% | 1/4W | |
| R117 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R118 | 1-214-781-00 | METAL | 150K | 1% | 1/4W | |
| R119 | 1-215-447-00 | METAL | 12K | 1% | 1/6W | |
| R120 | 1-216-431-11 | METAL OXIDE | 560 | 5% | 1W | F |
| R121 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R122 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R123 | 1-215-405-00 | METAL | 220 | 1% | 1/6W | |
| R124 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R125 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R126 | 1-215-394-00 | METAL | 75 | 1% | 1/6W | |
| R127 | 1-215-394-00 | METAL | 75 | 1% | 1/6W | |
| R128 | 1-214-779-00 | METAL | 120K | 1% | 1/4W | |
| R129 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R130 | 1-216-443-11 | METAL OXIDE | 56K | 5% | 1W | F |
| R131 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R132 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R133 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R134 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R135 | 1-249-426-11 | CARBON | 5.6K | 5% | 1/4W | |
| R136 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W | |

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

**BK** **C**

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R137 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R138 | 1-249-426-11 | CARBON | 5.6K | 5% | 1/4W | |
| R139 | 1-215-441-00 | METAL | 6.8K | 1% | 1/6W | |
| R140 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R141 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W | |
| R142 | 1-249-390-11 | CARBON | 5.6 | 5% | 1/4W | |
| R143 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R201 | 1-215-391-00 | METAL | 56 | 1% | 1/6W | |
| R202 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R204 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R205 | 1-249-424-11 | CARBON | 3.9K | 5% | 1/4W | |
| R206 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R207 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R208 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R209 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R210 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R211 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R212 | 1-215-391-00 | METAL | 56 | 1% | 1/6W | |
| R213 | 1-215-391-00 | METAL | 56 | 1% | 1/6W | |
| R214 | 1-215-437-00 | METAL | 4.7K | 1% | 1/6W | |
| R215 | 1-214-765-00 | METAL | 33K | 1% | 1/4W | |
| R216 | 1-214-765-00 | METAL | 33K | 1% | 1/4W | |
| R217 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R218 | 1-214-781-00 | METAL | 150K | 1% | 1/4W | |
| R219 | 1-215-447-00 | METAL | 12K | 1% | 1/6W | |
| R220 | 1-216-431-11 | METAL OXIDE | 560 | 5% | 1W | F |
| R221 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R222 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R223 | 1-215-405-00 | METAL | 220 | 1% | 1/6W | |
| R224 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R225 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R226 | 1-215-394-00 | METAL | 75 | 1% | 1/6W | |
| R227 | 1-215-394-00 | METAL | 75 | 1% | 1/6W | |
| R228 | 1-214-779-00 | METAL | 120K | 1% | 1/4W | |
| R229 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R230 | 1-216-443-11 | METAL OXIDE | 56K | 5% | 1W | F |
| R231 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R232 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R233 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R234 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R235 | 1-249-426-11 | CARBON | 5.6K | 5% | 1/4W | |
| R236 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W | |
| R237 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R238 | 1-249-426-11 | CARBON | 5.6K | 5% | 1/4W | |
| R239 | 1-215-441-00 | METAL | 6.8K | 1% | 1/6W | |
| R240 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R241 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W | |
| R242 | 1-249-390-11 | CARBON | 5.6 | 5% | 1/4W | |
| R243 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R301 | 1-215-391-00 | METAL | 56 | 1% | 1/6W | |
| R302 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R304 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R305 | 1-249-424-11 | CARBON | 3.9K | 5% | 1/4W | |
| R306 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R307 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R308 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R309 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R310 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R311 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R312 | 1-215-391-00 | METAL | 56 | 1% | 1/6W | |
| R313 | 1-215-391-00 | METAL | 56 | 1% | 1/6W | |
| R314 | 1-215-437-00 | METAL | 4.7K | 1% | 1/6W | |
| R315 | 1-214-765-00 | METAL | 33K | 1% | 1/4W | |
| R316 | 1-214-765-00 | METAL | 33K | 1% | 1/4W | |
| R317 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R318 | 1-214-781-00 | METAL | 150K | 1% | 1/4W | |
| R319 | 1-215-447-00 | METAL | 12K | 1% | 1/6W | |
| R320 | 1-216-431-11 | METAL OXIDE | 560 | 5% | 1W | F |
| R321 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R322 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R323 | 1-215-405-00 | METAL | 220 | 1% | 1/6W | |
| R324 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R325 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R326 | 1-215-394-00 | METAL | 75 | 1% | 1/6W | |
| R327 | 1-215-394-00 | METAL | 75 | 1% | 1/6W | |
| R328 | 1-214-779-00 | METAL | 120K | 1% | 1/4W | |
| R329 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R330 | 1-216-443-11 | METAL OXIDE | 56K | 5% | 1W | F |
| R331 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R332 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R333 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R334 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R335 | 1-249-426-11 | CARBON | 5.6K | 5% | 1/4W | |
| R336 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W | |
| R337 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R338 | 1-249-426-11 | CARBON | 5.6K | 5% | 1/4W | |
| R339 | 1-215-441-00 | METAL | 6.8K | 1% | 1/6W | |
| R340 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R341 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W | |
| R342 | 1-249-390-11 | CARBON | 5.6 | 5% | 1/4W | |
| R343 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |

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| | | | | | | |
|---|---|---|---|---|---|---|
| | *1-617-889-11 | C BOARD<br>****** | | | | |
| | ⚠1-526-771-11 | SOCKET, CRT | | | | |
| | 1-556-880-81 | LEAD ASSY, HIGH-VOLTAGE | | | | |

CAPACITOR

| | | | | | | |
|---|---|---|---|---|---|---|
| C1 | 1-162-114-00 | CERAMIC | 0.0047MF | | 2KV | |
| C2 | 1-162-114-00 | CERAMIC | 0.0047MF | | 2KV | |

CONNECTOR

| | | | | | | |
|---|---|---|---|---|---|---|
| C1 | *1-566-054-11 | PIN, CONNECTOR 2P | | | | |
| C2 | *1-566-056-11 | PIN, CONNECTOR 4P | | | | |
| C3 | *1-566-054-11 | PIN, CONNECTOR 2P | | | | |
| C4 | *1-566-056-11 | PIN, CONNECTOR 4P | | | | |
| C5 | *1-566-054-11 | PIN, CONNECTOR 2P | | | | |
| C6 | *1-566-056-11 | PIN, CONNECTOR 4P | | | | |
| C7 | *1-508-765-00 | 3P PLUG (M) | | | | |
| C8 | *1-508-786-00 | 2P PLUG (M) | | | | |

COIL

| | | | | | | |
|---|---|---|---|---|---|---|
| L1 | 1-408-408-00 | INDUCTOR | 8.2UH | | | |
| L2 | 1-408-408-00 | INDUCTOR | 8.2UH | | | |
| L3 | 1-408-408-00 | INDUCTOR | 8.2UH | | | |

RESISTOR

| | | | | | | |
|---|---|---|---|---|---|---|
| R1 | 1-202-818-00 | SOLID | 1K | 10% | 1/2W | |
| R2 | 1-202-818-00 | SOLID | 1K | 10% | 1/2W | |
| R3 | 1-202-818-00 | SOLID | 1K | 10% | 1/2W | |
| R4 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W | |
| R5 | 1-202-818-00 | SOLID | 1K | 10% | 1/2W | |
| R6 | 1-202-818-00 | SOLID | 1K | 10% | 1/2W | |
| R7 | 1-202-818-00 | SOLID | 1K | 10% | 1/2W | |
| R8 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W | |
| R9 | 1-202-818-00 | SOLID | 1K | 10% | 1/2W | |
| R10 | 1-202-818-00 | SOLID | 1K | 10% | 1/2W | |
| R11 | 1-202-818-00 | SOLID | 1K | 10% | 1/2W | |

| Ref.No | Part No. | Description | Remark | | |
|---|---|---|---|---|---|
| R12 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W |
| R13 | 1-202-818-00 | SOLID | 1K | 10% | 1/2W |

SPARK GAP

| Ref.No | Part No. | Description |
|---|---|---|
| SG1 | 1-519-063-XX | DISCHARGING GAP |
| SG2 | 1-519-063-XX | DISCHARGING GAP |
| SG3 | 1-519-063-XX | DISCHARGING GAP |
| SG4 | 1-519-063-XX | DISCHARGING GAP |
| SG5 | 1-519-063-XX | DISCHARGING GAP |
| SG6 | 1-519-063-XX | DISCHARGING GAP |
| SG7 | 1-519-063-XX | DISCHARGING GAP |

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*A-1345-767-A DA BOARD, COMPLETE

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| Ref.No | Part No. | Description |
|---|---|---|
| | 3-618-225-00 | NUT, PLATE |
| | 7-682-548-04 | SCREW P 3X8 |

CAPACITOR

| Ref.No | Part No. | Description | Remark | | |
|---|---|---|---|---|---|
| C1 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C2 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C3 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C4 | 1-101-361-00 | CERAMIC | 150PF | 5% | 50V |
| C5 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C6 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C7 | 1-101-361-00 | CERAMIC | 150PF | 5% | 50V |
| C8 | 1-102-971-00 | CERAMIC | 82PF | 5% | 50V |
| C9 | 1-101-361-00 | CERAMIC | 150PF | 5% | 50V |
| C10 | 1-106-188- | MYLAR | 0.0047MF | 5% | 100V |
| C11 | 1-130-738-00 | FILM | 0.015MF | 5% | 100V |
| C12 | 1-136-157-00 | FILM | 0.022MF | 5% | 50V |
| C13 | 1-136-155-00 | FILM | 0.015MF | 5% | 50V |
| C14 | 1-136-157-00 | FILM | 0.022MF | 5% | 50V |
| C15 | 1-130-479-00 | MYLAR | 0.0047MF | 5% | 50V |
| C16 | 1-124-589-11 | ELECT | 47MF | 20% | 16V |
| C17 | 1-124-234-00 | ELECT | 22MF | 20% | 16V |
| C18 | 1-124-234-00 | ELECT | 22MF | 20% | 16V |
| C19 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C20 | 1-130-871-11 | FILM | 0.01MF | 5% | 50V |
| C21 | 1-126-301-11 | ELECT | 1MF | 20% | 50V |
| C22 | 1-130-871-11 | FILM | 0.01MF | 5% | 50V |
| C23 | 1-126-301-11 | ELECT | 1MF | 20% | 50V |
| C24 | 1-126-301-11 | ELECT | 1MF | 20% | 50V |
| C25 | 1-126-301-11 | ELECT | 1MF | 20% | 50V |
| C26 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C27 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C28 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C29 | 1-126-301-11 | ELECT | 1MF | 20% | 50V |
| C30 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C31 | 1-102-973-00 | CERAMIC | 100PF | 5% | 50V |
| C32 | 1-101-361-00 | CERAMIC | 150PF | 5% | 50V |
| C33 | 1-130-871-11 | FILM | 0.01MF | 5% | 50V |
| C34 | 1-126-301-11 | ELECT | 1MF | 20% | 50V |
| C35 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C36 | 1-102-824-00 | CERAMIC | 470PF | 5% | 50V |
| C38 | 1-102-824-00 | CERAMIC | 470PF | 5% | 50V |
| C39 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C40 | 1-130-871-11 | FILM | 0.01MF | 5% | 50V |
| C41 | 1-126-301-11 | ELECT | 1MF | 20% | 50V |
| C42 | 1-130-871-11 | FILM | 0.01MF | 5% | 50V |
| C43 | 1-126-301-11 | ELECT | 1MF | 20% | 50V |
| C44 | 1-124-465-00 | ELECT | 0.47MF | 20% | 50V |
| C45 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C46 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C47 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C48 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C49 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C50 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C51 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C52 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C53 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C54 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C55 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C56 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C57 | 1-136-474-11 | FILM | 0.1MF | 5% | 100V |
| C58 | 1-130-871-11 | FILM | 0.01MF | 5% | 50V |
| C59 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C60 | 1-130-871-11 | FILM | 0.01MF | 5% | 50V |
| C61 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C62 | 1-130-871-11 | FILM | 0.01MF | 5% | 50V |
| C63 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C64 | 1-130-871-11 | FILM | 0.01MF | 5% | 50V |
| C65 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C66 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C67 | 1-126-163-11 | ELECT | 4.7MF | 20% | 25V |
| C68 | 1-101-361-00 | CERAMIC | 150PF | 5% | 50V |
| C69 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C70 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C71 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C72 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C73 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C74 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C75 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C76 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C77 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C78 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C80 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C90 | 1-136-161-00 | FILM | 0.047MF | 5% | 50V |
| C100 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C101 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C102 | 1-102-978-00 | CERAMIC | 220PF | 5% | 50V |

DIODE

| Ref.No | Part No. | Description |
|---|---|---|
| D1 | 8-719-911-19 | DIODE 1SS119 |
| D2 | 8-719-911-19 | DIODE 1SS119 |
| D3 | 8-719-109-97 | DIODE RD6.8ES-B2 |
| D4 | 8-719-109-97 | DIODE RD6.8ES-B2 |
| D5 | 8-719-110-31 | DIODE RD12ES-B2 |
| D6 | 8-719-110-31 | DIODE RD12ES-B2 |
| D7 | 8-719-911-19 | DIODE 1SS119 |
| D8 | 8-719-911-19 | DIODE 1SS119 |
| D9 | 8-719-110-03 | DIODE RD7.5ES-B2 |
| D10 | 8-719-110-03 | DIODE RD7.5ES-B2 |
| D11 | 8-719-110-41 | DIODE RD15ESB2 |
| D12 | 8-719-109-89 | DIODE RD5.6ESB2 |
| D13 | 8-719-911-19 | DIODE 1SS119 |
| D14 | 8-719-911-19 | DIODE 1SS119 |
| D15 | 8-719-911-19 | DIODE 1SS119 |
| D18 | 8-719-911-19 | DIODE 1SS119 |
| D19 | 8-719-911-19 | DIODE 1SS119 |

CONNECTOR

| Ref.No | Part No. | Description |
|---|---|---|
| DA1 | *1-566-060-11 | PIN, CONNECTOR 8P |
| DA2 | *1-566-056-11 | PIN, CONNECTOR 4P |
| DA3 | *1-566-062-11 | PIN, CONNECTOR 10P |
| DA4 | *1-566-058-11 | PIN, CONNECTOR 6P |
| DA5 | *1-566-055-11 | PIN, CONNECTOR 3P |
| DA6 | *1-566-058-11 | PIN, CONNECTOR 6P |
| DA7 | *1-566-056-11 | PIN, CONNECTOR 4P |

# DA

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| | | IC | | | | |
| IC1 | 8-759-984-27 | IC MB84027B | | | | |
| IC2 | 8-759-040-11 | IC MC14011BCP | | | | |
| IC3 | 8-759-000-58 | IC MC14093BCP | | | | |
| IC4 | 8-751-580-00 | IC CX-158 | | | | |
| IC5 | 8-759-990-82 | IC TL082CP | | | | |
| IC6 | 8-759-990-82 | IC TL082CP | | | | |
| IC7 | 8-759-014-96 | IC MC1496P | | | | |
| IC8 | 8-759-981-64 | IC LM2903DQ | | | | |
| IC9 | 8-759-990-82 | IC TL082CP | | | | |
| IC10 | 8-759-981-64 | IC LM2903DQ | | | | |
| IC11 | 8-759-990-82 | IC TL082CP | | | | |
| IC12 | 8-759-014-96 | IC MC1496P | | | | |
| IC13 | 8-759-000-49 | IC MC14066BCP | | | | |
| IC14 | 8-759-000-49 | IC MC14066BCP | | | | |
| IC15 | 8-759-000-49 | IC MC14066BCP | | | | |
| IC16 | 8-759-000-49 | IC MC14066BCP | | | | |
| IC17 | 8-759-945-58 | IC RC4558DQ | | | | |
| IC18 | 8-759-909-70 | IC CX23025 | | | | |
| IC19 | 8-759-945-58 | IC RC4558DQ | | | | |
| IC20 | 8-759-945-58 | IC RC4558DQ | | | | |
| IC21 | 8-759-945-58 | IC RC4558DQ | | | | |
| IC22 | 8-759-945-58 | IC RC4558DQ | | | | |
| IC23 | 8-759-945-58 | IC RC4558DQ | | | | |
| IC24 | 8-759-929-62 | IC LM7812CT | | | | |
| IC25 | 8-759-929-65 | IC LM7912CT | | | | |
| IC26 | 8-759-990-82 | IC TL082CP | | | | |
| | | COIL | | | | |
| L1 | 1-407-504-00 | INDUCTOR | 10MMH | | | |
| | | TRANSISTOR | | | | |
| Q1 | 8-729-900-89 | TRANSISTOR DTC144ES | | | | |
| Q2 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | | |
| Q3 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | | |
| Q4 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | | |
| Q5 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | | |
| Q6 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | | |
| Q7 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | | |
| Q8 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | | |
| Q9 | 8-729-800-10 | TRANSISTOR 2SC3068 | | | | |
| Q10 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | | |
| Q12 | 8-729-900-89 | TRANSISTOR DTC144ES-HFE | | | | |
| Q13 | 8-729-900-89 | TRANSISTOR DTC144ES-HFE | | | | |
| Q14 | 8-729-900-89 | TRANSISTOR DTC144ES-HFE | | | | |
| Q15 | 8-729-900-89 | TRANSISTOR DTC144ES-HFE | | | | |
| Q16 | 8-729-900-89 | TRANSISTOR DTC144ES-HFE | | | | |
| Q17 | 8-729-900-89 | TRANSISTOR DTC144ES-HFE | | | | |
| Q18 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | | |
| Q19 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | | |
| Q20 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | | |
| Q21 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | | |
| Q22 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | | |
| Q23 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | | |
| Q24 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | | |
| | | RESISTOR | | | | |
| R1 | 1-215-461-00 | METAL | 47K | 1% | 1/6W | |
| R2 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R3 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R4 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R5 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R6 | 1-247-840-00 | CARBON | 2.4K | 5% | 1/4W | |
| R7 | 1-215-462-00 | METAL | 51K | 1% | 1/6W | |
| R8 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R9 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R10 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W | |
| R11 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R12 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R13 | 1-249-424-11 | CARBON | 3.9K | 5% | 1/4W | |
| R14 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R15 | 1-249-410-11 | CARBON | 270 | 5% | 1/4W | |
| R16 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R17 | 1-215-427-00 | METAL | 1.8K | 1% | 1/6W | |
| R18 | 1-215-435-00 | METAL | 3.9K | 1% | 1/6W | |
| R19 | 1-215-443-00 | METAL | 8.2K | 1% | 1/6W | |
| R20 | 1-249-400-11 | CARBON | 39 | 5% | 1/4W | F |
| R21 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R22 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R23 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R24 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | |
| R25 | 1-249-393-11 | CARBON | 10 | 5% | 1/4W | |
| R26 | 1-215-439-00 | METAL | 5.6K | 1% | 1/6W | |
| R27 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R28 | 1-215-421-00 | METAL | 1K | 1% | 1/6W | |
| R29 | 1-215-458-00 | METAL | 36K | 1% | 1/6W | |
| R30 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R31 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | |
| R32 | 1-249-393-11 | CARBON | 10 | 5% | 1/4W | |
| R33 | 1-247-848-11 | CARBON | 5.1K | 5% | 1/4W | |
| R34 | 1-249-424-11 | CARBON | 3.9K | 5% | 1/4W | |
| R35 | 1-247-800-11 | CARBON | 51 | 5% | 1/4W | |
| R36 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R37 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R38 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R39 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R40 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R41 | 1-247-800-11 | CARBON | 51 | 5% | 1/4W | |
| R42 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R43 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R44 | 1-249-424-11 | CARBON | 3.9K | 5% | 1/4W | |
| R45 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R46 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R47 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W | |
| R48 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R49 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R50 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R51 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R52 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R53 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R54 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R55 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R56 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R57 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R58 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W | |
| R59 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R60 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R61 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R62 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | |
| R63 | 1-249-393-11 | CARBON | 10 | 5% | 1/4W | |
| R64 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R65 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R66 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R67 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R68 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R69 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R70 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R71 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R72 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W | |

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R74 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R76 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R77 | 1-249-439-11 | CARBON | 68K | 5% | 1/4W | |
| R79 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R80 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R81 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R82 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W | |
| R83 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R84 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R85 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | |
| R86 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R87 | 1-249-393-11 | CARBON | 10 | 5% | 1/4W | |
| R88 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R89 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R90 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R91 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R92 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R93 | 1-249-393-11 | CARBON | 10 | 5% | 1/4W | |
| R94 | 1-247-848-11 | CARBON | 5.1K | 5% | 1/4W | |
| R95 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R96 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R97 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R98 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W | |
| R99 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R100 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R101 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R102 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R103 | 1-249-424-11 | CARBON | 3.9K | 5% | 1/4W | |
| R104 | 1-247-800-11 | CARBON | 51 | 5% | 1/4W | |
| R105 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R106 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R107 | 1-249-424-11 | CARBON | 3.9K | 5% | 1/4W | |
| R109 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R110 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R111 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R112 | 1-249-426-11 | CARBON | 5.6K | 5% | 1/4W | |
| R113 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R114 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R115 | 1-247-830-11 | CARBON | 910 | 5% | 1/4W | |
| R116 | 1-247-830-11 | CARBON | 910 | 5% | 1/4W | |
| R117 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R118 | 1-215-449-00 | METAL | 15K | 1% | 1/6W | |
| R119 | 1-215-454-00 | METAL | 24K | 1% | 1/6W | |
| R120 | 1-215-437-00 | METAL | 4.7K | 1% | 1/6W | |
| R121 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R122 | 1-215-421-00 | METAL | 1K | 1% | 1/6W | |
| R123 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R124 | 1-215-433-00 | METAL | 3.3K | 1% | 1/6W | |
| R125 | 1-215-443-00 | METAL | 8.2K | 1% | 1/6W | |
| R126 | 1-215-437-00 | METAL | 4.7K | 1% | 1/6W | |
| R127 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R128 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R129 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R130 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R131 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R132 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R133 | 1-215-461-00 | METAL | 47K | 1% | 1/6W | |
| R134 | 1-215-447-00 | METAL | 12K | 1% | 1/6W | |
| R135 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | |
| R136 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R137 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R138 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R139 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R140 | 1-215-421-00 | METAL | 1K | 1% | 1/6W | |
| R141 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R142 | 1-215-457-00 | METAL | 33K | 1% | 1/6W | |
| R143 | 1-215-457-00 | METAL | 33K | 1% | 1/6W | |
| R144 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R145 | 1-215-481-00 | METAL | 330K | 1% | 1/6W | |
| R146 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R147 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R148 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R149 | 1-215-421-00 | METAL | 1K | 1% | 1/6W | |
| R150 | 1-215-457-00 | METAL | 33K | 1% | 1/6W | |
| R151 | 1-215-457-00 | METAL | 33K | 1% | 1/6W | |
| R152 | 1-215-481-00 | METAL | 330K | 1% | 1/6W | |
| R153 | 1-215-433-00 | METAL | 3.3K | 1% | 1/6W | |
| R154 | 1-215-411-00 | METAL | 390 | 1% | 1/6W | |
| R155 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R156 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R157 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R158 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R159 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R160 | 1-247-897-11 | CARBON | 560K | 5% | 1/4W | |
| R161 | 1-215-455-00 | METAL | 27K | 1% | 1/6W | |
| R162 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R163 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R164 | 1-215-461-00 | METAL | 47K | 1% | 1/6W | |
| R165 | 1-215-461-00 | METAL | 47K | 1% | 1/6W | |
| R166 | 1-215-485-00 | METAL | 470K | 1% | 1/6W | |
| R167 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R168 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R169 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R170 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R171 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R172 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R173 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R174 | 1-215-457-00 | METAL | 33K | 1% | 1/6W | |
| R175 | 1-215-457-00 | METAL | 33K | 1% | 1/6W | |
| R176 | 1-215-481-00 | METAL | 330K | 1% | 1/6W | |
| R177 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R178 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R179 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R180 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R181 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R182 | 1-215-451-00 | METAL | 18K | 1% | 1/6W | |
| R183 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R184 | 1-215-477-00 | METAL | 220K | 1% | 1/6W | |
| R185 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R186 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R187 | 1-215-437-00 | METAL | 4.7K | 1% | 1/6W | |
| R188 | 1-215-431-00 | METAL | 2.7K | 1% | 1/6W | |
| R189 | 1-215-409-00 | METAL | 330 | 1% | 1/6W | |
| R190 | 1-215-432-00 | METAL | 3K | 1% | 1/6W | |
| R191 | 1-215-409-00 | METAL | 330 | 1% | 1/6W | |
| R192 | 1-215-433-00 | METAL | 3.3K | 1% | 1/6W | |
| R193 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R194 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R195 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R196 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R197 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R198 | 1-215-475-00 | METAL | 180K | 1% | 1/6W | |
| R200 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R201 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R202 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R203 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R204 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R205 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R206 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R207 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |

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| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| R208 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W |
| R209 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R210 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R211 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R220 | 1-249-439-11 | CARBON | 68K | 5% | 1/4W |
| R221 | 1-249-428-11 | CARBON | 8.2K | 5% | 1/4W |
| R223 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R224 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R290 | 1-215-443-00 | METAL | 8.2K | 1% | 1/6W |

VARIABLE RESISTOR

| Ref.No | Part No. | Description |
|---|---|---|
| RV1 | 1-237-521-21 | RES, ADJ, CERMET 100K |
| RV2 | 1-237-522-21 | RES, ADJ, CERMET 200K |
| RV3 | 1-237-521-21 | RES, ADJ, CERMET 100K |
| RV4 | 1-237-519-21 | RES, ADJ, CERMET 20K |
| RV5 | 1-237-519-21 | RES, ADJ, CERMET 20K |
| RV6 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV7 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV10 | 1-237-519-21 | RES, ADJ, CERMET 20K |
| RV11 | 1-237-519-21 | RES, ADJ, CERMET 20K |
| RV12 | 1-237-519-21 | RES, ADJ, CERMET 20K |
| RV13 | 1-237-519-21 | RES, ADJ, CERMET 20K |
| RV14 | 1-237-519-21 | RES, ADJ, CERMET 20K |
| RV15 | 1-237-519-21 | RES, ADJ, CERMET 20K |
| RV16 | 1-237-519-21 | RES, ADJ, CERMET 20K |
| RV17 | 1-237-517-21 | RES, ADJ, CERMET 5K |
| RV18 | 1-237-517-21 | RES, ADJ, CERMET 5K |
| RV19 | 1-237-519-21 | RES, ADJ, CERMET 20K |
| RV20 | 1-237-519-21 | RES, ADJ, CERMET 20K |
| RV21 | 1-237-519-21 | RES, ADJ, CERMET 20K |
| RV22 | 1-237-516-21 | RES, ADJ, CERMET 2K |
| RV23 | 1-237-516-21 | RES, ADJ, CERMET 2K |
| RV24 | 1-237-516-21 | RES, ADJ, CERMET 2K |
| RV25 | 1-237-519-21 | RES, ADJ, CERMET 20K |
| RV26 | 1-237-519-21 | RES, ADJ, CERMET 20K |
| RV27 | 1-237-519-21 | RES, ADJ, CERMET 20K |
| RV28 | 1-237-519-21 | RES, ADJ, CERMET 20K |

SWITCH

| Ref.No | Part No. | Description |
|---|---|---|
| S1 | 1-571-908-11 | SWITCH, SLIDE |

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*A-1345-768-A DB BOARD, COMPLETE
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| Ref.No | Part No. | Description |
|---|---|---|
| | 3-618-225-00 | NUT, PLATE |
| | 7-682-548-04 | SCREW P 3X8 |

CAPACITOR

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C3 | 1-102-963-00 | CERAMIC | 33PF | 5% | 50V |
| C4 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C5 | 1-136-161-00 | FILM | 0.047MF | 5% | 50V |
| C6 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C7 | 1-124-589-11 | ELECT | 47MF | 20% | 16V |
| C8 | 1-136-153-00 | FILM | 0.01MF | 5% | 50V |
| C9 | 1-136-153-00 | FILM | 0.01MF | 5% | 50V |
| C10 | 1-136-161-00 | FILM | 0.047MF | 5% | 50V |
| C11 | 1-102-973-00 | CERAMIC | 100PF | 5% | 50V |
| C12 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C13 | 1-136-161-00 | FILM | 0.047MF | 5% | 50V |
| C14 | 1-102-074-00 | CERAMIC | 0.001MF | 10% | 50V |
| C15 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C16 | 1-102-074-00 | CERAMIC | 0.001MF | 10% | 50V |
| C17 | 1-136-153-00 | FILM | 0.01MF | 5% | 50V |
| C18 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C19 | 1-124-589-11 | ELECT | 47MF | 20% | 16V |
| C20 | 1-124-589-11 | ELECT | 47MF | 20% | 16V |
| C21 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C22 | 1-124-589-11 | ELECT | 47MF | 20% | 16V |
| C23 | 1-136-157-00 | FILM | 0.022MF | 5% | 50V |
| C24 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C25 | 1-136-153-00 | FILM | 0.01MF | 5% | 50V |
| C26 | 1-136-161-00 | FILM | 0.047MF | 5% | 50V |
| C27 | 1-136-157-00 | FILM | 0.022MF | 5% | 50V |
| C28 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C29 | 1-136-153-00 | FILM | 0.01MF | 5% | 50V |
| C30 | 1-136-161-00 | FILM | 0.047MF | 5% | 50V |
| C31 | 1-124-589-11 | ELECT | 47MF | 20% | 16V |
| C32 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C33 | 1-136-153-00 | FILM | 0.01MF | 5% | 50V |
| C34 | 1-136-161-00 | FILM | 0.047MF | 5% | 50V |
| C35 | 1-102-973-00 | CERAMIC | 100PF | 5% | 50V |
| C36 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C37 | 1-136-161-00 | FILM | 0.047MF | 5% | 50V |
| C38 | 1-102-074-00 | CERAMIC | 0.001MF | 10% | 50V |
| C39 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C40 | 1-102-074-00 | CERAMIC | 0.001MF | 10% | 50V |
| C41 | 1-136-153-00 | FILM | 0.01MF | 5% | 50V |
| C42 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C43 | 1-124-589-11 | ELECT | 47MF | 20% | 16V |
| C44 | 1-124-589-11 | ELECT | 47MF | 20% | 16V |
| C45 | 1-102-074-00 | CERAMIC | 0.001MF | 10% | 50V |
| C46 | 1-136-161-00 | FILM | 0.047MF | 5% | 50V |
| C47 | 1-102-973-00 | CERAMIC | 100PF | 5% | 50V |
| C48 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C49 | 1-136-161-00 | FILM | 0.047MF | 5% | 50V |
| C50 | 1-102-074-00 | CERAMIC | 0.001MF | 10% | 50V |
| C51 | 1-136-161-00 | FILM | 0.047MF | 5% | 50V |
| C52 | 1-102-074-00 | CERAMIC | 0.001MF | 10% | 50V |
| C53 | 1-101-880-00 | CERAMIC | 47PF | 5% | 50V |
| C54 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C55 | 1-124-589-11 | ELECT | 47MF | 20% | 16V |
| C56 | 1-124-589-11 | ELECT | 47MF | 20% | 16V |
| C57 | 1-102-074-00 | CERAMIC | 0.001MF | 10% | 50V |
| C58 | 1-136-161-00 | FILM | 0.047MF | 5% | 50V |
| C59 | 1-102-973-00 | CERAMIC | 100PF | 5% | 50V |
| C60 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C61 | 1-136-161-00 | FILM | 0.047MF | 5% | 50V |
| C62 | 1-102-074-00 | CERAMIC | 0.001MF | 10% | 50V |
| C63 | 1-136-161-00 | FILM | 0.047MF | 5% | 50V |
| C64 | 1-102-074-00 | CERAMIC | 0.001MF | 10% | 50V |
| C65 | 1-101-880-00 | CERAMIC | 47PF | 5% | 50V |
| C66 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C67 | 1-124-589-11 | ELECT | 47MF | 20% | 16V |
| C68 | 1-124-589-11 | ELECT | 47MF | 20% | 16V |
| C69 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C70 | 1-102-074-00 | CERAMIC | 0.001MF | 10% | 50V |
| C71 | 1-124-589-11 | ELECT | 47MF | 20% | 16V |
| C72 | 1-126-096-11 | ELECT | 10MF | 20% | 25V |
| C73 | 1-126-096-11 | ELECT | 10MF | 20% | 25V |
| C74 | 1-126-096-11 | ELECT | 10MF | 20% | 25V |
| C75 | 1-126-096-11 | ELECT | 10MF | 20% | 25V |
| C76 | 1-126-096-11 | ELECT | 10MF | 20% | 25V |
| C77 | 1-126-096-11 | ELECT | 10MF | 20% | 25V |
| C78 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C81 | 1-102-121-00 | CERAMIC | 0.0022MF | 10% | 50V |
| C83 | 1-136-167-00 | FILM | 0.15MF | 5% | 50V |
| C85 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C86 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C87 | 1-101-361-00 | CERAMIC | 150PF | 5% | 50V |
| C88 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C89 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |

### DIODE

| Ref.No | Part No. | Description |
|---|---|---|
| D2 | 8-719-110-41 | DIODE RD15ES-B2 |
| D3 | 8-719-911-19 | DIODE 1SS119 |
| D4 | 8-719-911-19 | DIODE 1SS119 |
| D5 | 8-719-911-19 | DIODE 1SS119 |
| D6 | 8-719-110-03 | DIODE RD7.5ES-B2 |
| D7 | 8-719-110-03 | DIODE RD7.5ES-B2 |
| D8 | 8-719-109-97 | DIODE RD6.8ES-B2 |

### CONNECTOR

| Ref.No | Part No. | Description |
|---|---|---|
| DB1 | *1-566-049-11 | PIN, CONNECTOR 10P |
| DB2 | *1-566-041-11 | PIN, CONNECTOR 2P |
| DB3 | *1-566-042-11 | PIN, CONNECTOR 3P |
| DB4 | *1-566-042-11 | PIN, CONNECTOR 3P |
| DB5 | *1-566-042-11 | PIN, CONNECTOR 3P |

### IC

| Ref.No | Part No. | Description |
|---|---|---|
| IC1 | 8-759-945-58 | IC RC4558P |
| IC2 | 8-759-945-58 | IC RC4558P |
| IC3 | 8-759-945-58 | IC RC4558P |
| IC4 | 8-759-945-58 | IC RC4558P |
| IC5 | 8-759-945-58 | IC RC4558P |
| IC6 | 8-759-945-58 | IC RC4558P |
| IC7 | 8-759-945-58 | IC RC4558P |
| IC8 | 8-759-945-58 | IC RC4558P |
| IC9 | 8-759-040-53 | IC MC14053BCP |
| IC10 | 8-759-040-53 | IC MC14053BCP |
| IC11 | 8-759-040-53 | IC MC14053BCP |
| IC13 | 8-759-929-62 | IC LM7812CT |
| IC14 | 8-759-929-65 | IC LM7912CT |
| IC15 | 8-759-345-38 | IC HD14538BP |
| IC16 | 8-759-981-64 | IC LM2903DQ |

### COIL

| Ref.No | Part No. | Description | |
|---|---|---|---|
| L1 | 1-408-238-00 | INDUCTOR | 3.9MMH |
| L2 | 1-408-238-00 | INDUCTOR | 3.9MMH |
| L3 | 1-408-238-00 | INDUCTOR | 3.9MMH |
| L4 | 1-408-238-00 | INDUCTOR | 3.9MMH |

### TRANSISTOR

| Ref.No | Part No. | Description |
|---|---|---|
| Q2 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q3 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q4 | 8-729-900-36 | TRANSISTOR DTC124ES |
| Q5 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q6 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q7 | 8-729-201-05 | TRANSISTOR 2SC2878-B |
| Q8 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q9 | 8-729-106-07 | TRANSISTOR 2SK514-H |
| Q10 | 8-729-900-36 | TRANSISTOR DTC124ES |
| Q11 | 8-729-201-05 | TRANSISTOR 2SC2878-B |
| Q12 | 8-729-201-05 | TRANSISTOR 2SC2878-B |
| Q13 | 8-729-106-07 | TRANSISTOR 2SK514-H |
| Q14 | 8-729-900-36 | TRANSISTOR DTC124ES |
| Q15 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q16 | 8-729-106-07 | TRANSISTOR 2SK514-H |
| Q17 | 8-729-900-36 | TRANSISTOR DTC124ES |
| Q18 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q19 | 8-729-201-05 | TRANSISTOR 2SC2878-B |
| Q20 | 8-729-201-05 | TRANSISTOR 2SC2878-B |
| Q21 | 8-729-201-05 | TRANSISTOR 2SC2878-B |
| Q22 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q23 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q24 | 8-729-106-07 | TRANSISTOR 2SK514-H |
| Q25 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q26 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q27 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q28 | 8-729-106-07 | TRANSISTOR 2SK514-H |
| Q29 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q30 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q31 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q32 | 8-729-106-07 | TRANSISTOR 2SK514-H |
| Q33 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q34 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE |
| Q35 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE |
| Q36 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q37 | 8-729-900-36 | TRANSISTOR DTC124ES |
| Q38 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE |
| Q40 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q41 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q42 | 8-729-201-05 | TRANSISTOR 2SC2878-B |
| Q43 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q44 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE |
| Q45 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q46 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |

### RESISTOR

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| R3 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W |
| R4 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W |
| R5 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R6 | 1-249-420-11 | CARBON | 1.8K | 5% | 1/4W |
| R7 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R8 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R9 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W |
| R10 | 1-215-467-00 | METAL | 82K | 1% | 1/6W |
| R11 | 1-215-439-00 | METAL | 5.6K | 1% | 1/6W |
| R12 | 1-215-477-00 | METAL | 220K | 1% | 1/6W |
| R13 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R14 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R15 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R16 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W |
| R17 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R18 | 1-215-477-00 | METAL | 220K | 1% | 1/6W |
| R19 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R20 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R21 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R22 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W |
| R23 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R24 | 1-215-457-00 | METAL | 33K | 1% | 1/6W |
| R25 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R26 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R27 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R28 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W |
| R29 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W |
| R30 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R31 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R32 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R33 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W |
| R34 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W |
| R35 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R36 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R37 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R38 | 1-215-445-00 | METAL | 10K | 1% | 1/6W |
| R39 | 1-215-445-00 | METAL | 10K | 1% | 1/6W |
| R40 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R42 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W |
| R43 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R44 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |

## DB

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R45 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R46 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R47 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R48 | 1-247-895-00 | CARBON | 470K | 5% | 1/4W | |
| R49 | 1-215-451-00 | METAL | 18K | 1% | 1/6W | |
| R50 | 1-215-451-00 | METAL | 18K | 1% | 1/6W | |
| R51 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R52 | 1-215-451-00 | METAL | 18K | 1% | 1/6W | |
| R53 | 1-247-895-00 | CARBON | 470K | 5% | 1/4W | |
| R54 | 1-215-451-00 | METAL | 18K | 1% | 1/6W | |
| R55 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R57 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R58 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R59 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R60 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R61 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R62 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R63 | 1-215-457-00 | METAL | 33K | 1% | 1/6W | |
| R64 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R65 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R66 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R67 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R68 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R69 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R70 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R71 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R72 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R73 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R74 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R75 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R76 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R77 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R78 | 1-215-469-00 | METAL | 100K | 1% | 1/6W | |
| R79 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R80 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R81 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R82 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R83 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R84 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R85 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R86 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R87 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R88 | 1-247-895-00 | CARBON | 470K | 5% | 1/4W | |
| R89 | 1-247-895-00 | CARBON | 470K | 5% | 1/4W | |
| R90 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R91 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R92 | 1-215-469-00 | METAL | 100K | 1% | 1/6W | |
| R93 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R94 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R95 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R96 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R97 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R98 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R99 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R100 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R101 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R102 | 1-247-895-00 | CARBON | 470K | 5% | 1/4W | |
| R103 | 1-247-895-00 | CARBON | 470K | 5% | 1/4W | |
| R104 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R105 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R106 | 1-215-397-00 | METAL | 100 | 1% | 1/6W | |
| R107 | 1-249-393-11 | CARBON | 10 | 5% | 1/4W | F |
| R108 | 1-249-393-11 | CARBON | 10 | 5% | 1/4W | F |
| R109 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R110 | 1-215-437-00 | METAL | 4.7K | 1% | 1/6W | |

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R111 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R112 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R113 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R114 | 1-215-441-00 | METAL | 6.8K | 1% | 1/6W | |
| R115 | 1-215-469-00 | METAL | 100K | 1% | 1/6W | |
| R116 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R117 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R118 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R120 | 1-215-421-00 | METAL | 1K | 1% | 1/6W | |
| R121 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R122 | 1-215-461-00 | METAL | 47K | 1% | 1/6W | |
| R123 | 1-215-437-00 | METAL | 4.7K | 1% | 1/6W | |
| R124 | 1-215-437-00 | METAL | 4.7K | 1% | 1/6W | |
| R125 | 1-215-469-00 | METAL | 100K | 1% | 1/6W | |
| R126 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R128 | 1-202-669- | SOLID | 10M | 5% | 1/2W | |
| R129 | 1-215-479-00 | METAL | 270K | 1% | 1/6W | |
| R130 | 1-247-830-11 | CARBON | 910 | 5% | 1/4W | |
| R132 | 1-247-830-11 | CARBON | 910 | 5% | 1/4W | |
| R134 | 1-215-453-00 | METAL | 22K | 1% | 1/6W | |
| R135 | 1-215-453-00 | METAL | 22K | 1% | 1/6W | |
| R136 | 1-215-453-00 | METAL | 22K | 1% | 1/6W | |
| R137 | 1-215-453-00 | METAL | 22K | 1% | 1/6W | |
| R138 | 1-215-453-00 | METAL | 22K | 1% | 1/6W | |
| R139 | 1-215-453-00 | METAL | 22K | 1% | 1/6W | |
| R140 | 1-215-453-00 | METAL | 22K | 1% | 1/6W | |
| R141 | 1-215-453-00 | METAL | 22K | 1% | 1/6W | |
| R142 | 1-215-453-00 | METAL | 22K | 1% | 1/6W | |
| R143 | 1-215-453-00 | METAL | 22K | 1% | 1/6W | |
| R144 | 1-215-453-00 | METAL | 22K | 1% | 1/6W | |
| R145 | 1-215-453-00 | METAL | 22K | 1% | 1/6W | |
| R146 | 1-215-453-00 | METAL | 22K | 1% | 1/6W | |
| R147 | 1-215-453-00 | METAL | 22K | 1% | 1/6W | |
| R148 | 1-215-453-00 | METAL | 22K | 1% | 1/6W | |
| R149 | 1-215-461-00 | METAL | 47K | 1% | 1/6W | |
| R150 | 1-215-461-00 | METAL | 47K | 1% | 1/6W | |
| R151 | 1-215-467-00 | METAL | 82K | 1% | 1/6W | |
| R152 | 1-215-461-00 | METAL | 47K | 1% | 1/6W | |
| R153 | 1-215-461-00 | METAL | 47K | 1% | 1/6W | |
| R154 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R155 | 1-215-457-00 | METAL | 33K | 1% | 1/6W | |
| R156 | 1-215-469-00 | METAL | 100K | 1% | 1/6W | |
| R157 | 1-215-457-00 | METAL | 33K | 1% | 1/6W | |
| R158 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R159 | 1-215-461-00 | METAL | 47K | 1% | 1/6W | |
| R160 | 1-215-461-00 | METAL | 47K | 1% | 1/6W | |
| R161 | 1-215-467-00 | METAL | 82K | 1% | 1/6W | |
| R162 | 1-215-461-00 | METAL | 47K | 1% | 1/6W | |
| R163 | 1-215-461-00 | METAL | 47K | 1% | 1/6W | |
| R164 | 1-215-461-00 | METAL | 47K | 1% | 1/6W | |
| R165 | 1-215-449-00 | METAL | 15K | 1% | 1/6W | |
| R166 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R167 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R168 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R169 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R170 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R171 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R172 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R174 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R175 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R176 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R177 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R178 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R179 | 1-249-438-11 | CARBON | 56K | 5% | 1/4W | |
| R180 | 1-249-440-11 | CARBON | 82K | 5% | 1/4W | |

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| R181 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R182 | 1-215-453-00 | METAL | 22K | 1% | 1/6W |
| R183 | 1-215-469-00 | METAL | 100K | 1% | 1/6W |
| R184 | 1-215-469-00 | METAL | 100K | 1% | 1/6W |
| R185 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R187 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W |
| R188 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R189 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W |
| R190 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R191 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W |
| R192 | 1-215-453-00 | METAL | 22K | 1% | 1/6W |
| R193 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R194 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |

### VARIABLE RESISTOR

| | | |
|---|---|---|
| RV1 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV2 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV3 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV4 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV5 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV6 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV7 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV8 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV9 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV10 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV11 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV12 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV13 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV14 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV15 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV16 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV17 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV18 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV19 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV20 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV21 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV22 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV23 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV24 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV25 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV26 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV27 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV28 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV29 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV30 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV31 | 1-237-521-21 | RES, ADJ, CERMET 100K |
| RV32 | 1-237-518-21 | RES, ADJ, CERMET 10K |
| RV33 | 1-237-518-21 | RES, ADJ, CERMET 10K |

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*A-1345-596-A EA BOARD, COMPLETE
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| | |
|---|---|
| *4-347-706-00 | HEAT SINK (TR) |
| *4-373-965-01 | INSULATOR (SMALL) |
| 7-682-548-04 | SCREW P 3X8 |
| 7-685-646-79 | SCREW BVTP 3X8 TYPE2 IT-3 |

### CAPACITOR

| | | | | | |
|---|---|---|---|---|---|
| C1 | 1-101-810-00 | CERAMIC | 100PF | 5% | 500V |
| C2 | 1-123-343-00 | ELECT | 33MF | 20% | 25V |
| C3 | 1-123-343-00 | ELECT | 33MF | 20% | 25V |
| C4 | 1-124-046-00 | ELECT | 10MF | | 160V |
| C5 | 1-124-046-00 | ELECT | 10MF | | 160V |
| C6 | 1-101-361-00 | CERAMIC | 150PF | 5% | 50V |

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C7 | 1-124-046-00 | ELECT | 10MF | | 160V |
| C8 | 1-136-337-11 | FILM | 3.3MF | 10% | 100V |
| C12 | 1-102-121-00 | CERAMIC | 0.0022MF | 10% | 50V |
| C13 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C14 | 1-130-728-00 | FILM | 0.0022MF | 5% | 50V |
| C15 | 1-102-973-00 | CERAMIC | 100PF | 5% | 50V |
| C16 | 1-123-356-00 | ELECT | 10MF | 20% | 25V |
| C17 | 1-123-330-00 | ELECT | 22MF | 20% | 16V |
| C18 | 1-102-973-00 | CERAMIC | 100PF | 5% | 50V |
| C19 | 1-123-369-00 | ELECT | 4.7MF | 20% | 25V |
| C20 | 1-136-161-00 | FILM | 0.047MF | 5% | 50V |
| C21 | 1-101-810-00 | CERAMIC | 100PF | 5% | 500V |
| C22 | 1-108-700-11 | MYLAR | 0.047MF | 10% | 200V |
| C23 | 1-123-024-21 | ELECT | 33MF | | 160V |
| C24 | 1-124-046-00 | ELECT | 10MF | | 160V |
| C25 | 1-136-113-00 | FILM | 2MF | 5% | 200V |
| C26 | 1-136-161-00 | FILM | 0.047MF | 5% | 50V |
| C27 | 1-108-700-11 | MYLAR | 0.047MF | 10% | 200V |
| C28 | 1-124-666-11 | ELECT | 4.7MF | 20% | 200V |
| C29 | 1-101-810-00 | CERAMIC | 100PF | 5% | 500V |
| C30 | 1-162-135-11 | CERAMIC | 560PF | 10% | 2KV |
| C31 | 1-136-069-00 | FILM | 0.0044MF | 3% | 2KV |
| C32 | 1-136-069-00 | FILM | 0.0044MF | 3% | 2KV |
| C33 | 1-124-512-11 | ELECT | 33MF | 20% | 50V |
| C34 | 1-124-512-11 | ELECT | 33MF | 20% | 50V |
| C35 | 1-126-163-11 | ELECT | 4.7MF | 20% | 50V |
| C36 | 1-126-163-11 | ELECT | 4.7MF | 20% | 50V |
| C37 | 1-161-051-00 | CERAMIC | 0.01MF | 10% | 50V |
| C39 | 1-162-318-11 | CERAMIC | 0.001MF | 10% | 500V |
| C40 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C41 | 1-102-244-00 | CERAMIC | 220PF | 10% | 500V |
| C42 | 1-102-973-00 | CERAMIC | 100PF | 5% | 50V |

### DIODE

| | | |
|---|---|---|
| D1 | 8-719-110-31 | DIODE RD12ES-B2 |
| D2 | 8-719-911-19 | DIODE 1SS119 |
| D3 | 8-719-911-19 | DIODE 1SS119 |
| D4 | 8-719-911-19 | DIODE 1SS119 |
| D7 | 8-719-110-03 | DIODE RD7.5ES-B2 |
| D8 | 8-719-300-76 | DIODE RH-1A |
| D9 | 8-719-928-08 | DIODE ERD28-08S |
| D10 | 8-719-300-76 | DIODE RH-1A |
| D11 | 8-719-300-76 | DIODE RH-1A |
| D12 | 8-719-300-76 | DIODE RH-1A |
| D13 | 8-719-109-75 | DIODE RD4.3ES-B2 |
| D14 | 8-719-109-75 | DIODE RD4.3ES-B2 |
| D15 | 8-719-911-19 | DIODE 1SS119 |
| D16 | 8-719-911-19 | DIODE 1SS119TD |

### CONNECTOR

| | | |
|---|---|---|
| EA1 | *1-568-536-11 | PLUG (MINIATURE DY) 6P |

### IC

| | | |
|---|---|---|
| IC1 | 8-759-100-75 | IC UPC1394C |
| IC2 | 8-759-945-58 | IC RC4558P |

### COIL

| | | |
|---|---|---|
| L1 | 1-459-433-00 | COIL (WITH CORE) |
| L2 | 1-459-433-00 | COIL (WITH CORE) |
| L3 | 1-459-433-00 | COIL (WITH CORE) |
| L4 | 1-459-111-00 | COIL, DRAM CORE (CDI) |
| L5 | 1-459-111-00 | COIL, DRAM CORE (CDI) |

### TRANSISTOR

| | | |
|---|---|---|
| Q1 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |

**EA** **EB**

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| Q2 | 8-729-697-92 | TRANSISTOR 2SA979-G | | | | |
| Q3 | 8-729-140-96 | TRANSISTOR 2SD774-34 | | | | |
| Q4 | 8-729-303-61 | TRANSISTOR 2SC3851-G | | | | |
| Q5 | 8-729-304-07 | TRANSISTOR 2SA1488-Y | | | | |
| Q10 | 8-729-119-80 | TRANSISTOR 2SC2688-LK | | | | |
| Q11 | 8-729-175-22 | TRANSISTOR 2SC2752-L | | | | |
| Q12 | 8-729-200-17 | TRANSISTOR 2SA1091-O | | | | |
| Q13 | 8-729-119-80 | TRANSISTOR 2SC2688-LK | | | | |
| Q14 | 8-729-202-53 | TRANSISTOR 2SD1556-LB | | | | |
| Q15 | 8-729-313-42 | TRANSISTOR 2SD1134-C | | | | |
| Q16 | 8-729-385-82 | TRANSISTOR 2SB858-C | | | | |

### RESISTOR

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R1 | 1-249-418-11 | CARBON | 1.2K | 5% | 1/4W | |
| R2 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R3 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R4 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R5 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R6 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R7 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R8 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R9 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R10 | 1-249-418-11 | CARBON | 1.2K | 5% | 1/4W | |
| R11 | 1-249-448-11 | CARBON | 1.2 | 5% | 1/4W | F |
| R12 | 1-249-448-11 | CARBON | 1.2 | 5% | 1/4W | F |
| R13 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R14 | 1-215-887-00 | METAL OXIDE | 150 | 5% | 2W | F |
| R15 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R22 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R23 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R24 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R25 | 1-215-431-00 | METAL | 2.7K | 1% | 1/6W | |
| R26 | 1-215-431-00 | METAL | 2.7K | 1% | 1/6W | |
| R27 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R28 | 1-215-461-00 | METAL | 47K | 1% | 1/6W | |
| R29 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R30 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R31 | 1-247-868-11 | CARBON | 36K | 5% | 1/4W | |
| R32 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R33 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | |
| R34 | 1-215-433-00 | METAL | 3.3K | 1% | 1/6W | |
| R35 | 1-215-435-00 | METAL | 3.9K | 1% | 1/6W | |
| R36 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R37 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R38 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R39 | 1-215-469-00 | METAL | 100K | 1% | 1/6W | |
| R40 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R41 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R42 | 1-215-876-00 | METAL OXIDE | 15K | 5% | 1W | F |
| R43 | 1-215-859-00 | METAL OXIDE | 22 | 5% | 1W | F |
| R44 | 1-216-349-00 | METAL OXIDE | 1 | 5% | 1W | F |
| R45 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R46 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R47 | 1-216-463-00 | METAL OXIDE | 12K | 5% | 2W | F |
| R48 | 1-216-346-00 | METAL OXIDE | 0.56 | 5% | 1W | F |
| R49 | 1-249-382-11 | CARBON | 1.2 | 5% | 1/4W | F |
| R50 | 1-247-826-00 | CARBON | 620 | 5% | 1/4W | |
| R51 | 1-247-826-00 | CARBON | 620 | 5% | 1/4W | |
| R52 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R53 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R54 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R55 | 1-249-394-11 | CARBON | 12 | 5% | 1/4W | F |
| R56 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R57 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R58 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R59 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R60 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R61 | 1-215-882-00 | METAL OXIDE | 22 | 5% | 2W | F |
| R62 | 1-215-882-00 | METAL OXIDE | 22 | 5% | 2W | F |
| R63 | 1-216-361-00 | METAL OXIDE | 0.22 | 5% | 2W | F |

### TRANSFORMER

| Ref.No | Part No. | Description |
|---|---|---|
| T1 | 1-460-067-11 | HLT |
| T2 | 1-407-850-00 | DLT |
| T3 | 1-437-078-00 | TRANSFORMER, HORIZONTAL DRIVE |
| T4 | 1-437-079-00 | TRANSFORMER, HORIZONTAL DRIVE |
| T5 | 1-439-383-11 | HOT |

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*A-1345-597-A EB BOARD, COMPLETE
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| Ref.No | Part No. | Description |
|---|---|---|
| | *4-373-965-01 | INSULATOR (SMALL) |
| | *4-373-966-01 | INSULATOR (LARGE) |
| | 7-682-548-04 | SCREW P 3X8 |

### CAPACITOR

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| C1 | 1-124-666-11 | ELECT | 4.7MF | 20% | 200V | |
| C2 | 1-124-357-11 | ELECT | 33MF | 20% | 35V | |
| C3 | 1-123-380-00 | ELECT | 1MF | 20% | 50V | |
| C4 | 1-124-357-11 | ELECT | 33MF | 20% | 35V | |
| C6 | 1-130-789-00 | FILM | 1MF | 5% | 100V | |
| C7 | 1-108-696-11 | MYLAR | 0.022MF | 10% | 200V | |
| C8 | 1-124-666-11 | ELECT | 4.7MF | 20% | 200V | |
| C9 | 1-130-479-00 | MYLAR | 0.0047MF | 5% | 50V | |
| C10 | 1-124-122-11 | ELECT | 100MF | 20% | 25V | |
| C11 | 1-102-973-00 | CERAMIC | 100PF | 5% | 50V | |
| C12 | 1-124-122-11 | ELECT | 100MF | 20% | 25V | |
| C13 | 1-136-161-00 | FILM | 0.047MF | 5% | 50V | |
| C14 | 1-123-356-00 | ELECT | 10MF | 20% | 50V | |
| C15 | 1-136-167-00 | FILM | 0.15MF | 5% | 50V | |
| C16 | 1-124-046-00 | ELECT | 10MF | | 160V | |
| C17 | 1-124-046-00 | ELECT | 10MF | 20% | 160V | |
| C18 | 1-124-122-11 | ELECT | 100MF | 20% | 25V | |
| C19 | 1-124-122-11 | ELECT | 100MF | 20% | 25V | |
| C20 | 1-162-129-00 | CERAMIC | 150PF | 10% | 2KV | |
| C21 | 1-136-173-00 | FILM | 0.47MF | 5% | 50V | |
| C22 | 1-102-959-00 | CERAMIC | 22PF | 5% | 50V | |
| C23 | 1-101-880-00 | CERAMIC | 47PF | 5% | 50V | |

### DIODE

| Ref.No | Part No. | Description |
|---|---|---|
| D1 | 8-719-911-19 | DIODE 1SS119 |
| D2 | 8-719-911-19 | DIODE 1SS119 |
| D3 | 8-719-911-19 | DIODE 1SS119 |
| D4 | 8-719-911-55 | DIODE U05G |
| D5 | 8-719-911-55 | DIODE U05G |
| D6 | 8-719-911-19 | DIODE 1SS119 |
| D7 | 8-719-911-19 | DIODE 1SS119 |
| D8 | 8-719-911-19 | DIODE 1SS119 |
| D9 | 8-719-911-19 | DIODE 1SS119 |
| D10 | 8-719-911-19 | DIODE 1SS119 |

### COIL

| Ref.No | Part No. | Description |
|---|---|---|
| L1 | 1-459-075-00 | COIL,DYNAMIC CONVERSION CHOKE |

### TRANSISTOR

| Ref.No | Part No. | Description |
|---|---|---|
| Q1 | 8-729-697-92 | TRANSISTOR 2SA979-G |
| Q2 | 8-729-140-96 | TRANSISTOR 2SD774-34 |
| Q3 | 8-729-309-08 | TRANSISTOR 2SC1890A-E |
| Q4 | 8-729-309-36 | TRANSISTOR 2SA893A-EV |
| Q5 | 8-729-300-70 | TRANSISTOR 2SD1137 |

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| Q6 | 8-729-300-80 | TRANSISTOR 2SB860 | | | | |
| Q7 | 8-729-386-12 | TRANSISTOR 2SB861-C | | | | |
| Q8 | 8-729-255-12 | TRANSISTOR 2SC2551-O | | | | |
| Q9 | 8-729-697-92 | TRANSISTOR 2SA979-G | | | | |
| Q10 | 8-729-140-96 | TRANSISTOR 2SD774-34 | | | | |
| Q11 | 8-729-374-02 | TRANSISTOR 2SB740-3 | | | | |
| Q12 | 8-729-306-92 | TRANSISTOR 2SD669A-C | | | | |
| Q13 | 8-729-306-92 | TRANSISTOR 2SD669A-C | | | | |
| Q14 | 8-729-255-12 | TRANSISTOR 2SC2551-O | | | | |
| Q15 | 8-729-255-12 | TRANSISTOR 2SC2551-O | | | | |
| Q16 | 8-729-255-12 | TRANSISTOR 2SC2551-O | | | | |
| Q17 | 8-729-200-17 | TRANSISTOR 2SA1091-O | | | | |
| Q18 | 8-729-119-80 | TRANSISTOR 2SC2688-LK | | | | |
| Q19 | 8-729-119-80 | TRANSISTOR 2SC2688-LK | | | | |

### RESISTOR

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R1 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R2 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R3 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R4 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R5 | 1-249-426-11 | CARBON | 5.6K | 5% | 1/4W | |
| R6 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R7 | 1-216-465-11 | METAL OXIDE | 27K | 5% | 2W | F |
| R8 | 1-247-802-11 | CARBON | 62 | 5% | 1/4W | |
| R9 | 1-249-414-11 | CARBON | 560 | 5% | 1/4W | |
| R10 | 1-249-448-11 | CARBON | 1.2 | 5% | 1/4W | F |
| R11 | 1-249-448-11 | CARBON | 1.2 | 5% | 1/4W | F |
| R12 | 1-216-351-00 | METAL OXIDE | 1.5 | 5% | 1W | F |
| R13 | 1-216-431-11 | METAL OXIDE | 560 | 5% | 1W | F |
| R14 | 1-215-866-11 | METAL OXIDE | 330 | 5% | 1W | F |
| R15 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R16 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W | F |
| R17 | 1-247-700-11 | CARBON | 100 | 5% | 1/4W | F |
| R18 | 1-215-873-00 | METAL OXIDE | 4.7K | 5% | 1W | F |
| R19 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R20 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R21 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R22 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R23 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R24 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R25 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R26 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R27 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R28 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R29 | 1-249-452-11 | CARBON | 2.7 | 5% | 1/4W | F |
| R30 | 1-249-452-11 | CARBON | 2.7 | 5% | 1/4W | F |
| R31 | 1-249-407-11 | CARBON | 150 | 5% | 1/4W | F |
| R32 | 1-216-351-00 | METAL OXIDE | 1.5 | 5% | 1W | F |
| R33 | 1-215-421-00 | METAL | 1K | 1% | 1/6W | |
| R34 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R35 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W | |
| R36 | 1-216-465-11 | METAL OXIDE | 27K | 5% | 2W | F |
| R37 | 1-249-401-11 | CARBON | 47 | 5% | 1/4W | |
| R38 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R39 | 1-215-445-00 | METAL | 10K | 1% | 1/6W | |
| R40 | 1-215-453-00 | METAL | 22K | 1% | 1/6W | |
| R41 | 1-215-421-00 | METAL | 1K | 1% | 1/6W | |
| R42 | 1-247-688-11 | CARBON | 10 | 5% | 1/4W | F |
| R43 | 1-247-688-11 | CARBON | 10 | 5% | 1/4W | F |
| R44 | 1-215-865-11 | METAL OXIDE | 220 | 5% | 1W | F |
| R45 | 1-247-688-11 | CARBON | 10 | 5% | 1/4W | F |

### TRANSFORMER

| Ref.No | Part No. | Description |
|---|---|---|
| T1 | 1-421-504-00 | TRANSFORMER, FERRITE (VPT) |
| T2 | 1-407-849-00 | TRANSFORMER, D.F |

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| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| | *A-1316-056-A | GA BOARD, COMPLETE | (BVM-1410P ONLY) |
| | | *************** | |
| | *A-1316-048-A | GA BOARD, COMPLETE | (BVM-1410PM ONLY) |
| | | *************** | |
| | ⚠1-532-203-11 | FUSE, TIME-LAG 2A/250V (BVM-1410P ONLY) | |
| | 1-533-167-21 | HOLDER, FUSE | |
| | 1-533-168-21 | HOLDER, FUSE | |
| | 1-535-316-11 | TERMINAL, GROUND (M4) | |
| | ⚠1-570-173-22 | SWITCH, VOLTAGE CHANGE | |
| | ⚠*1-580-375-11 | INLET 3P | |
| | *2-990-241-01 | HOLDER (A), PLUG | |
| | *3-337-402-01 | BAND, BINDING | |
| | *4-347-706-00 | HEAT SINK (TR) | |
| | *4-371-879-02 | COVER, AC SELECT | |
| | 4-379-403-01 | SPACER (G1), POLISHING | |
| | *4-379-408-01 | INSULATOR (G3) | |
| | *4-379-409-01 | NUT, PLATE | |
| | 4-379-410-01 | SPACER (G2), POLISHING | |
| | *4-379-430-03 | PANEL, POWER | |
| | *4-386-847-01 | HEAT SINK (S.R.T) | |
| | *4-386-848-01 | BAND (S.R.T) | |
| | *4-393-031-01 | COVER, FUSE HOLDER | |
| | 4-601-466-11 | COVER, 3P INLET | |
| | 7-682-247-04 | SCREW K 3X6 | |
| | 7-682-547-04 | SCREW BVTT 3X6 (S) | |
| | 7-682-547-09 | SCREW B 3X6 | |
| | 7-682-550-04 | SCREW P 3X12 | |
| | 7-682-552-04 | SCREW P 3X16 | |
| | 7-682-554-04 | SCREW P 3X25 | |
| | 7-682-560-04 | SCREW P 4X6 | |
| | 7-682-948-01 | SCREW PSW 3X8 | |
| | 7-685-646-79 | SCREW BVTP 3X8 TYPE2 IT-3 | |

### CAPACITOR

| Ref.No | Part No. | Description | | | |
|---|---|---|---|---|---|
| C1 | 1-124-024-00 | ELECT | 4.7MF | 20% | 350V |
| C2 | 1-124-024-00 | ELECT | 4.7MF | 20% | 350V |
| C3 | 1-162-117-00 | CERAMIC | 100PF | 10% | 500V |
| C4 | 1-162-117-00 | CERAMIC | 100PF | 10% | 500V |
| C5 | 1-162-117-00 | CERAMIC | 100PF | 10% | 500V |
| C6 | 1-162-117-00 | CERAMIC | 100PF | 10% | 500V |
| C7 | 1-126-104-11 | ELECT | 470MF | 20% | 25V |
| C8 | 1-126-105-11 | ELECT | 1000MF | 20% | 25V |
| C9 | 1-126-104-11 | ELECT | 470MF | 20% | 25V |
| C10 | 1-126-105-11 | ELECT | 1000MF | 20% | 25V |
| C11 | 1-126-104-11 | ELECT | 470MF | 20% | 25V |
| C12 | 1-124-602-00 | ELECT | 2200MF | 20% | 25V |
| C13 | 1-126-104-11 | ELECT | 470MF | 20% | 25V |
| C14 | 1-124-602-00 | ELECT | 2200MF | 20% | 25V |
| C15 | 1-124-360-00 | ELECT | 1000MF | 20% | 16V |
| C16 | 1-126-103-11 | ELECT | 470MF | 20% | 16V |
| C17 | 1-106-375-12 | MYLAR | 0.022MF | 10% | 100V |
| C18 | 1-108-638-11 | MYLAR | 0.1MF | 10% | 100V |
| C19 | 1-102-030-00 | CERAMIC | 330PF | 10% | 500V |
| C20 | 1-162-117-00 | CERAMIC | 100PF | 10% | 500V |
| C21 | 1-102-038-00 | CERAMIC | 0.001MF | | 500V |
| C22 | 1-162-117-00 | CERAMIC | 100PF | 10% | 500V |
| C23 | 1-106-375-12 | MYLAR | 0.022MF | 10% | 100V |
| C24 | 1-108-638-11 | MYLAR | 0.1MF | 10% | 100V |
| C25 | 1-123-380-00 | ELECT | 1MF | 20% | 50V |
| C26 | 1-101-361-00 | CERAMIC | 150PF | 5% | 50V |
| C27 | 1-101-361-00 | CERAMIC | 150PF | 5% | 50V |
| C28 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C29 | 1-123-332-00 | ELECT | 47MF | 20% | 25V |
| C30 | 1-162-117-00 | CERAMIC | 100PF | 10% | 500V |

# GA

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C31 | 1-102-030-00 | CERAMIC | 330PF | 10% | 500V |
| C32 | 1-123-380-00 | ELECT | 1MF | 20% | 50V |
| C33 | 1-101-361-00 | CERAMIC | 150PF | 5% | 50V |
| C34 | 1-101-361-00 | CERAMIC | 150PF | 5% | 50V |
| C35 | 1-123-380-00 | ELECT | 1MF | 20% | 50V |
| C36 | 1-123-332-00 | ELECT | 47MF | 20% | 25V |
| C37 | 1-130-734-00 | FILM | 0.0068MF | 5% | 50V |
| C38 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C39 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C40 | 1-123-381-00 | ELECT | 2.2MF | 20% | 50V |
| C41 | 1-102-038-00 | CERAMIC | 0.001MF | | 500V |
| C42 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C43 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C44 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C45 | 1-162-132-00 | CERAMIC | 270PF | 10% | 2KV |
| C46 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C47 | 1-136-173-00 | FILM | 0.47MF | 5% | 50V |
| C48 | 1-136-173-00 | FILM | 0.47MF | 5% | 50V |
| C49 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C50 | 1-101-006-00 | CERAMIC | 0.047MF | | 50V |
| C51 | 1-101-006-00 | CERAMIC | 0.047MF | | 50V |
| C52 | 1-101-006-00 | CERAMIC | 0.047MF | | 50V |
| C53 | 1-101-006-00 | CERAMIC | 0.047MF | | 50V |
| C54 | 1-101-006-00 | CERAMIC | 0.047MF | | 50V |
| C55 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C56 | 1-136-201-11 | FILM | 0.22MF | 5% | 400V |
| C57 | 1-123-356-00 | ELECT | 10MF | 20% | 25V |
| C58 | 1-123-379-00 | ELECT | 0.47MF | 20% | 50V |
| C59 | 1-130-734-00 | FILM | 0.0068MF | 5% | 50V |
| C60 | 1-102-228-00 | CERAMIC | 470PF | 10% | 500V |
| C61 | 1-102-228-00 | CERAMIC | 470PF | 10% | 500V |
| C62 | 1-102-228-00 | CERAMIC | 470PF | 10% | 500V |
| C63 | 1-102-228-00 | CERAMIC | 470PF | 10% | 500V |
| C64 | 1-124-024-00 | ELECT | 4.7MF | 20% | 350V |
| C65 | 1-124-024-00 | ELECT | 4.7MF | 20% | 350V |
| C66 | 1-162-117-00 | CERAMIC | 100PF | 10% | 500V |
| C67 | 1-162-117-00 | CERAMIC | 100PF | 10% | 500V |
| C68 | 1-162-117-00 | CERAMIC | 100PF | 10% | 500V |
| C69 | 1-124-562-11 | ELECT | 47MF | 20% | 200V |
| C70 | 1-124-171-00 | ELECT | 100MF | 20% | 160V |
| C71 | 1-162-117-00 | CERAMIC | 100PF | 10% | 500V |
| C72 | 1-124-562-11 | ELECT | 47MF | 20% | 200V |
| C73 | 1-124-171-00 | ELECT | 100MF | 20% | 160V |
| C74 | 1-124-122-11 | ELECT | 100MF | 20% | 16V |
| C75 | 1-124-122-11 | ELECT | 100MF | 20% | 16V |
| C76 | ⚠.1-161-953-52 | CERAMIC | 0.0047MF | 20% | 400V |
| C77 | ⚠.1-161-953-52 | CERAMIC | 0.0047MF | 20% | 400V |
| C78 | 1-162-599-12 | CERAMIC | 0.0047MF | 20% | 400V |
| C79 | 1-162-599-12 | CERAMIC | 0.0047MF | 20% | 400V |
| C80 | 1-125-658-11 | ELECT | 560MF | 20% | 250V |
| C81 | 1-125-658-11 | ELECT | 560MF | 20% | 250V |
| C82 | 1-123-369-00 | ELECT | 4.7MF | 20% | 25V |
| C83 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C84 | ⚠.1-136-311-61 | FILM | 0.47MF | 20% | 300V |
| C85 | ⚠.1-162-578-51 | CERAMIC | 0.0047MF | 20% | 400V |
| C86 | ⚠.1-162-578-51 | CERAMIC | 0.0047MF | 20% | 400V |
| C87 | ⚠.1-162-578-51 | CERAMIC | 0.0047MF | 20% | 400V |
| C88 | ⚠.1-162-578-51 | CERAMIC | 0.0047MF | 20% | 400V |
| C89 | ⚠.1-136-311-61 | FILM | 0.47MF | 20% | 300V |
| C90 | 1-136-159-00 | FILM | 0.033MF | 5% | 50V |
| C91 | 1-162-599-12 | CERAMIC<br>(BVM-1410P ONLY) | 0.0047MF | 20% | 400V |
| C92 | 1-136-159-00 | FILM | 0.033MF | 5% | 50V |
| C93 | 1-162-599-12 | CERAMIC<br>(BVM-1410P ONLY) | 0.0047MF | 20% | 400V |
| C94 | 1-102-038-00 | CERAMIC | 0.001MF | | 500V |
| C95 | 1-136-173-00 | FILM | 0.47MF | 5% | 50V |
| C96 | 1-102-050-00 | CERAMIC | 0.01MF | 99% | 500V |
| C97 | 1-136-173-00 | FILM | 0.47MF | 5% | 50V |
| C98 | 1-136-173-00 | FILM | 0.47MF | 5% | 50V |
| C99 | 1-102-050-00 | CERAMIC | 0.01MF | 99% | 500V |
| C100 | 1-162-117-00 | CERAMIC | 100PF | 10% | 500V |
| C101 | 1-162-117-00 | CERAMIC | 100PF | 10% | 500V |
| C102 | 1-136-601-11 | FILM | 0.01MF | 5% | 630V |
| C103 | 1-136-601-11 | FILM | 0.01MF | 5% | 630V |

## DIODE

| Ref.No | Part No. | Description |
|---|---|---|
| D1 | 8-719-912-51 | DIODE ESAC25-04C |
| D2 | 8-719-918-73 | DIODE ESAC25-04N |
| D3 | 8-719-901-73 | DIODE ESAD25-04D |
| D4 | 8-719-901-73 | DIODE ESAD25-04D |
| D5 | 8-719-907-24 | DIODE ESAC31-02D |
| D6 | 8-719-907-24 | DIODE ESAC31-02D |
| D7 | 8-719-300-33 | DIODE RU-3AM |
| D8 | 8-719-300-52 | DIODE CTU-38R |
| D9 | 8-719-300-53 | DIODE CTU-38S |
| D10 | 8-719-912-51 | DIODE ESAC25-04C |
| D11 | 8-719-918-73 | DIODE ESAC25-04N |
| D12 | 8-719-911-19 | DIODE 1SS119 |
| D13 | 8-719-911-19 | DIODE 1SS119 |
| D14 | 8-719-100-58 | DIODE RD10EB3 |
| D15 | 8-719-911-19 | DIODE 1SS119 |
| D16 | 8-719-911-19 | DIODE 1SS119 |
| D17 | 8-719-911-19 | DIODE 1SS119 |
| D18 | 8-719-109-89 | DIODE RD5.6ESB2 |
| D20 | 8-719-200-02 | DIODE 10E-2 |
| D21 | ⚠.8-719-300-07 | DIODE RB406N |
| D22 | 8-759-157-40 | IC UPC574J |
| D23 | 8-719-911-19 | DIODE 1SS119 |
| D24 | 8-719-100-58 | DIODE RD10EB3 |
| D25 | 8-719-911-19 | DIODE 1SS119 |
| D26 | 8-719-003-08 | THYRISTOR CR3CM-8 |
| D27 | 8-719-981-00 | DIODE ERB81-004 |
| D28 | 8-719-981-00 | DIODE ERB81-004 |
| D29 | 8-719-981-00 | DIODE ERB81-004 |
| D30 | 8-719-981-00 | DIODE ERB81-004 |
| D31 | 8-719-300-33 | DIODE RU-3AM |
| D32 | 8-719-300-33 | DIODE RU-3AM |

## CONNECTOR

| Ref.No | Part No. | Description |
|---|---|---|
| GA1 | 1-506-348-XX | PIN, CONNECTOR 3P |
| GA2 | *1-506-371-00 | PIN, CONNECTOR 2P |
| GA3 | 1-508-768-00 | PIN, CONNECTOR (5MM PITCH) 6P |
| GA4 | *1-508-786-00 | PIN, CONNECTOR (5MM PITCH) 2P |
| GA5 | *1-566-055-11 | PIN, CONNECTOR 3P |
| GA6 | *1-566-055-11 | PIN, CONNECTOR 3P |
| GA7 | *1-566-058-11 | PIN, CONNECTOR 6P |
| GA8 | *1-566-057-11 | PIN, CONNECTOR 5P |

## IC

| Ref.No | Part No. | Description |
|---|---|---|
| IC1 | 1-806-805-11 | IC MC5433 |
| IC2 | 8-759-904-94 | IC TL494CN |
| IC3 | 8-759-904-94 | IC TL494CN |

## COIL

| Ref.No | Part No. | Description |
|---|---|---|
| L3 | 1-459-643-11 | COIL, CHOKE 525UH |
| L4 | 1-459-643-11 | COIL, CHOKE 525UH |
| L5 | 1-459-643-11 | COIL, CHOKE 525UH |
| L6 | 1-459-643-11 | COIL, CHOKE 525UH |
| L7 | 1-459-207-00 | COIL, CORE |
| L8 | 1-459-644-11 | COIL, CHOKE 2.9MMH |

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

- The components identified by ⧓ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| L9 | 1-459-645-11 | COIL, CHOKE 20MMH | | | | |
| L10 | 1-421-329-00 | COIL, CHOKE | | | | |
| L11 | 1-421-329-00 | COIL, CHOKE | | | | |
| L12 | 1-421-329-00 | COIL, CHOKE | | | | |
| L13 | 1-421-329-00 | COIL, CHOKE | | | | |
| L14 | 1-421-329-00 | COIL, CHOKE | | | | |
| L15 | 1-421-329-00 | COIL, CHOKE | | | | |
| L16 | 1-421-329-00 | COIL, CHOKE | | | | |
| L17 | ⚠.1-421-590-11 | TRANSFORMER, LINE FILTER | | | | |
| L18 | ⚠.1-421-590-11 | TRANSFORMER, LINE FILTER | | | | |

### TRANSISTOR

| Ref.No | Part No. | Description |
|---|---|---|
| Q1 | 8-729-301-76 | TRANSISTOR STR8124-R |
| Q2 | 8-729-301-76 | TRANSISTOR STR8124-R |
| Q3 | 8-729-140-96 | TRANSISTOR 2SD774-34 |
| Q4 | 8-729-140-96 | TRANSISTOR 2SD774-34 |
| Q5 | 8-729-140-96 | TRANSISTOR 2SD774-34 |
| Q6 | 8-729-140-96 | TRANSISTOR 2SD774-34 |
| Q7 | 8-729-140-97 | TRANSISTOR 2SB734-34 |
| Q8 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q9 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q10 | 8-729-313-42 | TRANSISTOR 2SD1134-C |
| Q11 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE |
| Q12 | 8-729-140-96 | TRANSISTOR 2SD774-34 |
| Q13 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| Q14 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |

### RESISTOR

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R1 | 1-215-857-11 | METAL OXIDE | 10 | 5% | 1W | F |
| R2 | 1-215-857-11 | METAL OXIDE | 10 | 5% | 1W | F |
| R3 | 1-247-715-11 | CARBON | 1.5K | 5% | 1/4W | |
| R4 | 1-215-857-11 | METAL OXIDE | 10 | 5% | 1W | F |
| R5 | 1-215-857-11 | METAL OXIDE | 10 | 5% | 1W | F |
| R6 | 1-249-447-11 | CARBON | 1 | 5% | 1/4W | F |
| R7 | 1-247-692-11 | CARBON | 22 | 5% | 1/4W | |
| R8 | 1-249-418-11 | CARBON | 1.2K | 5% | 1/4W | |
| R9 | 1-249-382-11 | CARBON | 1.2 | 5% | 1/4W | F |
| R10 | 1-249-447-11 | CARBON | 1 | 5% | 1/4W | F |
| R11 | 1-247-692-11 | CARBON | 22 | 5% | 1/4W | |
| R12 | 1-249-418-11 | CARBON | 1.2K | 5% | 1/4W | |
| R13 | 1-215-866-11 | METAL OXIDE | 330 | 5% | 1W | F |
| R14 | 1-247-700-11 | CARBON | 100 | 5% | 1/4W | |
| R15 | 1-247-709-11 | CARBON | 510 | 5% | 1/4W | |
| R16 | 1-247-709-11 | CARBON | 510 | 5% | 1/4W | |
| R17 | 1-247-700-11 | CARBON | 100 | 5% | 1/4W | |
| R18 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R19 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R20 | 1-247-838-00 | CARBON | 2K | 5% | 1/4W | |
| R21 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R22 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W | |
| R23 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R24 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R25 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W | |
| R26 | 1-247-700-11 | CARBON | 100 | 5% | 1/4W | |
| R27 | 1-247-713-11 | CARBON | 1K | 5% | 1/4W | |
| R28 | 1-247-713-11 | CARBON | 1K | 5% | 1/4W | |
| R29 | 1-247-700-11 | CARBON | 100 | 5% | 1/4W | |
| R30 | 1-215-886-11 | METAL OXIDE | 100 | 5% | 2W | F |
| R31 | 1-215-886-11 | METAL OXIDE | 100 | 5% | 2W | F |
| R32 | 1-215-886-11 | METAL OXIDE | 100 | 5% | 2W | F |
| R33 | 1-247-697-11 | CARBON | 56 | 5% | 1/4W | F |
| R34 | 1-247-697-11 | CARBON | 56 | 5% | 1/4W | F |
| R35 | 1-215-863-11 | METAL OXIDE | 100 | 5% | 1W | F |
| R36 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R37 | 1-249-420-11 | CARBON | 1.8K | 5% | 1/4W | |
| R38 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R39 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W | |
| R40 | 1-215-453-00 | METAL | 22K | 1% | 1/6W | |
| R41 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R42 | 1-215-437-00 | METAL | 4.7K | 1% | 1/6W | |
| R43 | 1-215-435-00 | METAL | 3.9K | 1% | 1/6W | |
| R44 | 1-215-427-00 | METAL | 1.8K | 1% | 1/6W | |
| R45 | 1-247-713-11 | CARBON | 1K | 5% | 1/4W | |
| R46 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R47 | 1-216-995-11 | METAL | 820 | 1% | 10W | |
| R48 | 1-215-866-11 | METAL OXIDE | 330 | 5% | 1W | F |
| ⧓R52 | ⚠. | METAL OXIDE | | 5% | 2W | F |
| ⧓R53 | ⚠. | METAL | | 1% | 1/6W | |
| R54 | 1-215-901-00 | METAL OXIDE | 33K | 5% | 2W | F |
| R55 | 1-215-426-00 | METAL | 1.6K | 1% | 1/6W | |
| R60 | 1-249-420-11 | CARBON | 1.8K | 5% | 1/4W | |
| R61 | 1-249-420-11 | CARBON | 1.8K | 5% | 1/4W | |
| R62 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R64 | 1-249-426-11 | CARBON | 5.6K | 5% | 1/4W | |
| R65 | 1-215-437-00 | METAL | 4.7K | 1% | 1/6W | |
| R66 | 1-215-453-00 | METAL | 22K | 1% | 1/6W | |
| ⧓R67 | ⚠. | METAL | | 1% | 1/2W | |
| ⧓R68 | ⚠. | METAL | | 1% | 1/6W | |
| R74 | 1-215-889-00 | METAL OXIDE | 330 | 5% | 2W | F |
| R77 | 1-215-433-00 | METAL | 3.3K | 1% | 1/6W | |
| R78 | 1-215-433-00 | METAL | 3.3K | 1% | 1/6W | |
| R80 | ⚠.1-202-643-35 | SOLID | 820K | 10% | 1/2W | |
| R81 | 1-215-461-00 | METAL | 47K | 1% | 1/6W | |
| R82 | 1-215-461-00 | METAL | 47K | 1% | 1/6W | |
| R83 | 1-215-461-00 | METAL | 47K | 1% | 1/6W | |
| R84 | 1-215-459-00 | METAL | 39K | 1% | 1/6W | |
| R85 | 1-215-449-00 | METAL | 15K | 1% | 1/6W | |
| R86 | 1-215-437-00 | METAL | 4.7K | 1% | 1/6W | |
| R87 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R88 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R89 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R90 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R91 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R92 | ⚠.1-217-295-11 | WIREWOUND | 5.6 | 10% | 5W | F |
| R93 | 1-215-886-11 | METAL OXIDE | 100 | 5% | 2W | F |
| R94 | 1-205-538-00 | WIREWOUND | 4.7 | 10% | 10W | |
| R95 | 1-215-904-11 | METAL OXIDE | 100K | 5% | 2W | F |
| R96 | 1-215-904-11 | METAL OXIDE | 100K | 5% | 2W | F |
| R97 | 1-215-904-11 | METAL OXIDE | 100K | 5% | 2W | F |
| R98 | 1-215-904-11 | METAL OXIDE | 100K | 5% | 2W | F |

### VARIABLE RESISTOR

| Ref.No | Part No. | Description |
|---|---|---|
| RV1 | 1-237-514-21 | RES, ADJ, CERMET 500 |
| RV2 | 1-237-515-21 | RES, ADJ, CERMET 1K |

### RELAY

| Ref.No | Part No. | Description |
|---|---|---|
| RY1 | ⚠.1-515-805-11 | RELAY, POWER |

### TRANSFORMER

| Ref.No | Part No. | Description |
|---|---|---|
| T1 | ⚠.1-448-433-11 | TRANSFORMER, CONVERTER (S.R.T) |
| T2 | ⚠.1-447-106-11 | TRANSFORMER, DRIVE |
| T3 | ⚠.1-421-624-12 | TRANSFORMER, CURRENT |
| T4 | ⚠.1-447-426-12 | TRANSFORMER, CONVERTER |
| T5 | ⚠.1-448-432-12 | TRANSFORMER, CONVERTER (S.R.T) |
| T6 | ⚠.1-447-106-11 | TRANSFORMER, DRIVE |
| T7 | ⚠.1-421-624-12 | TRANSFORMER, CURRENT |

### THERMISTOR

| Ref.No | Part No. | Description |
|---|---|---|
| TH1 | ⚠.1-800-820-12 | THERMISTOR, POWER |
| THP1 | ⚠.1-806-387-12 | THERMISTOR (POSITIVE) |
| THP2 | ⚠.1-800-686-33 | THERMISTOR (POSITIVE) |

# GB GC HA

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | *1-617-884-11 | GB BOARD | | | |
| | | ******* | | | |
| | | CAPACITOR | | | |
| C1 | 1-123-380-00 | ELECT | 1MF | 20% | 50V |
| C2 | 1-123-380-00 | ELECT | 1MF | 20% | 50V |
| | | DIODE | | | |
| D1 | 8-719-911-19 | DIODE 1SS119 | | | |
| D2 | 8-719-110-08 | DIODE RD8.2ES-B2 | | | |
| D3 | 8-719-911-19 | DIODE 1SS119 | | | |
| D4 | 8-719-911-19 | DIODE 1SS119 | | | |
| D5 | 8-719-911-19 | DIODE 1SS119 | | | |
| D6 | 8-719-110-08 | DIODE RD8.2ES-B2 | | | |
| D7 | 8-719-812-41 | DIODE TLR124 | | | |
| D8 | 8-719-911-19 | DIODE 1SS119 | | | |
| D9 | 8-719-911-19 | DIODE 1SS119 | | | |
| D10 | 8-719-812-41 | DIODE TLR124 | | | |
| D11 | 8-719-110-08 | DIODE RD8.2ES-B2 | | | |
| D12 | 8-719-911-19 | DIODE 1SS119 | | | |
| D13 | 8-719-911-19 | DIODE 1SS119 | | | |
| D14 | 8-719-911-19 | DIODE 1SS119 | | | |
| D15 | 8-719-911-19 | DIODE 1SS119 | | | |
| D16 | 8-719-911-19 | DIODE 1SS119 | | | |
| D17 | 8-719-110-08 | DIODE RD8.2ES-B2 | | | |
| D18 | 8-719-911-19 | DIODE 1SS119 | | | |
| D19 | 8-719-911-19 | DIODE 1SS119 | | | |
| | | CONNECTOR | | | |
| GA1 | *1-506-603-11 | PLUG, L TYPE (2.0MM PITCH) 10P | | | |
| | | TRANSISTOR | | | |
| Q1 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | | | |
| Q2 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | |
| Q3 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | | | |
| Q4 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | |
| Q5 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | | | |
| Q6 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | | | |
| Q7 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | | | |
| Q8 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | |
| Q9 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | | | |
| Q10 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | |
| | | RESISTOR | | | |
| R1 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W |
| R2 | 1-249-428-11 | CARBON | 8.2K | 5% | 1/4W |
| R3 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R4 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W |
| R5 | 1-249-420-11 | CARBON | 1.8K | 5% | 1/4W |
| R6 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W |
| R7 | 1-249-420-11 | CARBON | 1.8K | 5% | 1/4W |
| R8 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R9 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W |
| R10 | 1-249-428-11 | CARBON | 8.2K | 5% | 1/4W |
| R11 | 1-249-424-11 | CARBON | 3.9K | 5% | 1/4W |
| R12 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R13 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W |
| R14 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R15 | 1-249-424-11 | CARBON | 3.9K | 5% | 1/4W |
| R16 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R17 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W |
| R18 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R19 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R20 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R21 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R22 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W |
| R23 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W |
| R24 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R25 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |

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| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | *1-617-885-11 | GC BOARD | | | |
| | | ******* | | | |
| | | CAPACITOR | | | |
| C1 | 1-123-330-00 | ELECT | 22MF | 20% | 25V |
| C2 | 1-123-330-00 | ELECT | 22MF | 20% | 25V |
| C3 | 1-123-330-00 | ELECT | 22MF | 20% | 25V |
| C4 | 1-123-330-00 | ELECT | 22MF | 20% | 25V |
| C5 | 1-123-330-00 | ELECT | 22MF | 20% | 25V |
| C6 | 1-123-330-00 | ELECT | 22MF | 20% | 25V |
| C7 | 1-123-330-00 | ELECT | 22MF | 20% | 25V |
| C8 | 1-123-330-00 | ELECT | 22MF | 20% | 25V |
| C9 | 1-123-330-00 | ELECT | 22MF | 20% | 25V |
| C12 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C14 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C16 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C17 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C18 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| | | CONNECTOR | | | |
| GC1 | *1-566-044-11 | PIN, CONNECTOR 5P | | | |
| GC2 | *1-566-057-11 | PIN, CONNECTOR 5P | | | |
| GC3 | *1-566-044-11 | PIN, CONNECTOR 5P | | | |
| | | IC | | | |
| IC1 | 8-759-929-65 | IC LM7912CT | | | |
| IC2 | 8-759-929-65 | IC LM7912CT | | | |
| IC3 | 8-759-929-62 | IC LM7812CT | | | |
| IC4 | 8-759-929-62 | IC LM7812CT | | | |

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| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | *1-617-890-11 | HA BOARD | | | |
| | | ******* | | | |
| | | CONNECTOR | | | |
| HA1 | *1-566-055-11 | PIN, CONNECTOR 3P | | | |
| HA2 | *1-566-056-11 | PIN, CONNECTOR 4P | | | |
| HA3 | *1-566-064-11 | PIN, CONNECTOR 12P | | | |
| HA4 | *1-566-054-11 | PIN, CONNECTOR 2P | | | |
| | | RESISTOR | | | |
| R1 | 1-247-814-11 | CARBON | 200 | 5% | 1/4W |
| R2 | 1-215-469-00 | METAL | 100K | 1% | 1/6W |
| | | VARIABLE RESISTOR | | | |
| RV1 | 1-237-519-21 | RES, ADJ, CERMET 20K | | | |
| | | SWITCH | | | |
| S1 | 1-570-565-11 | SWITCH, PUSH (10 KEY) | | | |
| S2 | 1-570-565-11 | SWITCH, PUSH (10 KEY) | | | |
| S3 | 1-570-565-11 | SWITCH, PUSH (10 KEY) | | | |
| S4 | 1-570-565-11 | SWITCH, PUSH (10 KEY) | | | |
| S5 | 1-570-565-11 | SWITCH, PUSH (10 KEY) | | | |
| S6 | 1-570-565-11 | SWITCH, PUSH (10 KEY) | | | |
| S7 | 1-570-565-11 | SWITCH, PUSH (10 KEY) | | | |
| S8 | 1-570-565-11 | SWITCH, PUSH (10 KEY) | | | |
| S9 | 1-570-565-11 | SWITCH, PUSH (10 KEY) | | | |

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| S10 | 1-570-565-11 | SWITCH, PUSH (10 KEY) | | | |

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*1-617-886-11 HB BOARD
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| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | 1-570-568-11 | SWITCH, PUSH (4 KEY) | | | |
| | 1-570-569-11 | SWITCH, PUSH (3 KEY) | | | |

CAPACITOR

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C1 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C2 | 1-124-034-51 | ELECT | 33MF | 20% | 16V |
| C3 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C4 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C5 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C6 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C7 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |

DIODE

| Ref.No | Part No. | Description |
|---|---|---|
| D1 | 8-719-938-68 | DIODE GL3HY8 |
| D2 | 8-719-938-68 | DIODE GL3HY8 |
| D3 | 8-719-938-68 | DIODE GL3HY8 |
| D4 | 8-719-938-68 | DIODE GL3HY8 |
| D5 | 8-719-812-43 | DIODE TLG124A |
| D6 | 8-719-812-43 | DIODE TLG124A |
| D7 | 8-719-812-43 | DIODE TLG124A |

CONNECTOR

| Ref.No | Part No. | Description |
|---|---|---|
| HB1 | *1-566-064-11 | PIN, CONNECTOR 12P |
| HB2 | *1-566-062-11 | PIN, CONNECTOR 10P |
| HB3 | *1-566-060-11 | PIN, CONNECTOR 8P |
| HB4 | *1-566-064-11 | PIN, CONNECTOR 12P |
| HB5 | *1-566-058-11 | PIN, CONNECTOR 6P |
| HB6 | *1-566-064-11 | PIN, CONNECTOR 12P |

RESISTOR

| Ref.No | Part No. | Description | | | |
|---|---|---|---|---|---|
| R1 | 1-215-469-00 | METAL | 100K | 1% | 1/6W |
| R2 | 1-215-469-00 | METAL | 100K | 1% | 1/6W |
| R3 | 1-215-469-00 | METAL | 100K | 1% | 1/6W |
| R4 | 1-215-469-00 | METAL | 100K | 1% | 1/6W |
| R5 | 1-215-469-00 | METAL | 100K | 1% | 1/6W |
| R6 | 1-215-469-00 | METAL | 100K | 1% | 1/6W |
| R7 | 1-215-469-00 | METAL | 100K | 1% | 1/6W |
| R8 | 1-215-469-00 | METAL | 100K | 1% | 1/6W |
| R9 | 1-215-469-00 | METAL | 100K | 1% | 1/6W |
| R10 | 1-215-469-00 | METAL | 100K | 1% | 1/6W |
| R11 | 1-215-469-00 | METAL | 100K | 1% | 1/6W |
| R12 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W |
| R13 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W |
| R15 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W |
| R16 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W |
| R17 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W |

VARIABLE RESISTOR

| Ref.No | Part No. | Description |
|---|---|---|
| RV1 | 1-237-519-21 | RES, ADJ, CERMET 20K |
| RV2 | 1-237-519-21 | RES, ADJ, CERMET 20K |
| RV3 | 1-237-519-21 | RES, ADJ, CERMET 20K |
| RV4 | 1-237-519-21 | RES, ADJ, CERMET 20K |
| RV5 | 1-237-520-21 | RES, ADJ, CERMET 50K |
| RV6 | 1-237-520-21 | RES, ADJ, CERMET 50K |
| RV7 | 1-237-520-21 | RES, ADJ, CERMET 50K |
| RV8 | 1-237-520-21 | RES, ADJ, CERMET 50K |
| RV9 | 1-237-520-21 | RES, ADJ, CERMET 50K |
| RV10 | 1-237-520-21 | RES, ADJ, CERMET 50K |
| RV11 | 1-237-520-21 | RES, ADJ, CERMET 50K |
| RV12 | 1-237-521-21 | RES, ADJ, CERMET 100K |

SWITCH

| Ref.No | Part No. | Description |
|---|---|---|
| S8 | 1-570-509-11 | SWITCH, TOGGLE |
| S9 | 1-570-509-11 | SWITCH, TOGGLE |
| S10 | 1-570-509-11 | SWITCH, TOGGLE |
| S11 | 1-570-510-11 | SWITCH, TOGGLE |
| S12 | 1-570-509-11 | SWITCH, TOGGLE |
| S13 | 1-570-509-11 | SWITCH, TOGGLE |
| S14 | 1-570-512-11 | SWITCH, TOGGLE |
| S15 | 1-570-509-11 | SWITCH, TOGGLE |

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*1-617-887-11 HC BOARD
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SWITCH

| Ref.No | Part No. | Description |
|---|---|---|
| SW1 | 1-570-567-21 | SWITCH, PUSH (2 KEY) |
| SW2 | 1-570-567-21 | SWITCH, PUSH (2 KEY) |
| SW3 | 1-570-567-11 | SWITCH, PUSH (2 KEY) |
| SW4 | 1-570-567-11 | SWITCH, PUSH (2 KEY) |

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*1-617-893-11 HD BOARD
*******
(Serial No. Up to 2,001,396 BVM-1410P ONLY)
(Serial No. Up to 2,000,020 BVM-1410PM ONLY)

RESISTOR

| Ref.No | Part No. | Description | | | |
|---|---|---|---|---|---|
| R1 | 1-215-465-00 | METAL | 68K | 1% | 1/6W |
| R2 | 1-215-451-00 | METAL | 18K | 1% | 1/6W |
| R3 | 1-215-469-00 | METAL | 100K | 1% | 1/6W |
| R4 | 1-215-469-00 | METAL | 100K | 1% | 1/6W |
| R5 | 1-215-425-11 | CARBON | 4.7K | 5% | 1/4W |

VARIABLE RESISTOR

| Ref.No | Part No. | Description |
|---|---|---|
| RV1 | 1-230-788-71 | RES, VAR, CERMET 20K |
| RV2 | 1-230-788-71 | RES, VAR, CERMET 20K |
| RV3 | 1-230-788-71 | RES, VAR, CERMET 20K |
| RV4 | 1-230-788-71 | RES, VAR, CERMET 20K |

SWITCH

| Ref.No | Part No. | Description |
|---|---|---|
| SW1 | 1-570-566-11 | SWITCH, PUSH (4 KEY) |
| SW2 | 1-570-566-11 | SWITCH, PUSH (4 KEY) |
| SW3 | 1-570-566-11 | SWITCH, PUSH (4 KEY) |
| SW4 | 1-570-566-11 | SWITCH, PUSH (4 KEY) |

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*1-618-814-11 HE BOARD
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1-627-681-11 HG BOARD
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**(Serial No. 2,001,397 and Higher BVM-1410P only)**
**(Serial No. 2,000,021 and Higher BVM-1410PM only)**

| Ref.No | Part No. | Description |
|---|---|---|
| | *4-026-910-00 | HOLDER, LED |
| | 7-682-547-09 | SCREW BVTT 3X6 (S) |

DIODE

| Ref.No | Part No. | Description |
|---|---|---|
| D1 | 8-719-938-68 | DIODE GL3HY8 |
| D2 | 8-719-812-41 | DIODE TLR124 |

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | | RESISTOR | | | |
| R1 | 1-215-465-00 | METAL | 68K | 1% | 1/6W |
| R2 | 1-215-451-00 | METAL | 18K | 1% | 1/6W |
| R3 | 1-215-469-00 | METAL | 100K | 1% | 1/6W |
| R4 | 1-215-469-00 | METAL | 100K | 1% | 1/6W |
| R5 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W |
| | | SWITCH | | | |
| SW1 | 1-570-566-11 | SWITCH, PUSH (4 KEY) | | | |
| SW2 | 1-570-566-11 | SWITCH, PUSH (4 KEY) | | | |
| SW3 | 1-570-566-11 | SWITCH, PUSH (4 KEY) | | | |
| SW4 | 1-570-566-11 | SWITCH, PUSH (4 KEY) | | | |

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*1-627-682-11 HH BOARD
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**(Serial No. 2,001,397 and Higher BVM-1410P only)**
**(Serial No. 2,000,021 and Higher BVM-1410PM only)**

| | | | |
|---|---|---|---|
| | | CONECCTOR | |
| HH1 | 1-566-614-11 | PLUG (L TYPE) 3 KEY | |
| HH2 | 1-566-614-11 | PLUG (L TYPE) 3 KEY | |
| HH3 | 1-566-614-11 | PLUG (L TYPE) 3 KEY | |
| HH4 | 1-566-614-11 | PLUG (L TYPE) 3 KEY | |
| | | VARIABLE RESISTOR | |
| RV1 | 1-238-332-11 | RES, VAR, CARBON | 20K |
| RV2 | 1-238-332-11 | RES, VAR, CARBON | 20K |
| RV3 | 1-238-332-11 | RES, VAR, CARBON | 20K |
| RV4 | 1-238-332-11 | RES, VAR, CARBON | 20K |

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*A-1345-598-A PA BOARD, COMPLETE
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| | | | | | |
|---|---|---|---|---|---|
| | 1-506-108-41 | PIN, CONNECTOR (TERMINAL PIN) | | | |
| | 7-682-548-04 | SCREW P 3X8 | | | |
| | | CAPACITOR | | | |
| C101 | 1-124-046-00 | ELECT | 10MF | 20% | 160V |
| C102 | 1-123-332-00 | ELECT | 47MF | 20% | 25V |
| C103 | 1-123-024-21 | ELECT | 33MF | | 160V |
| C104 | 1-136-171-00 | FILM | 0.33MF | 5% | 50V |
| C105 | 1-108-700-11 | MYLAR | 0.047MF | 10% | 200V |
| C106 | 1-108-700-11 | MYLAR | 0.047MF | 10% | 200V |
| C107 | 1-102-030-00 | CERAMIC | 330PF | 10% | 500V |
| C108 | 1-136-072-00 | FILM | 0.0063MF | 3% | 2KV |
| C109 | 1-161-753-00 | CERAMIC | 470PF | 10% | 3KV |
| C110 | 1-162-114-00 | CERAMIC | 0.0047MF | | 2KV |
| C111 | 1-136-601-11 | FILM | 0.01MF | 10% | 630V |
| C112 | 1-136-557-11 | FILM | 0.0033MF | 5% | 630V |
| C113 | 1-136-173-00 | FILM | 0.47MF | 5% | 50V |
| C116 | 1-123-330-00 | ELECT | 22MF | 20% | 16V |
| C117 | 1-123-332-00 | ELECT | 47MF | 20% | 16V |
| C118 | 1-102-973-00 | CERAMIC | 100PF | 5% | 50V |
| C119 | 1-108-796-11 | MYLAR | 0.0022MF | 5% | 50V |
| C120 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C121 | 1-102-074-00 | CERAMIC | 0.001MF | 10% | 50V |
| C122 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C123 | 1-136-169-00 | FILM | 0.22MF | 5% | 50V |
| C124 | 1-136-111-00 | FILM | 1MF | 5% | 200V |
| C125 | 1-136-169-00 | FILM | 0.22MF | 5% | 50V |
| C126 | 1-102-030-00 | CERAMIC | 330PF | 10% | 500V |
| C127 | 1-130-736-11 | FILM | 0.01MF | 5% | 50V |
| C128 | 1-130-994-11 | FILM | 0.033MF | 5% | 50V |
| C129 | 1-123-369-00 | ELECT | 4.7MF | 20% | 25V |

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C130 | 1-102-074-00 | CERAMIC | 0.001MF | 10% | 50V |
| C131 | 1-136-153-00 | FILM | 0.01MF | 5% | 50V |
| C132 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C201 | 1-108-634-11 | MYLAR | 0.047MF | 10% | 100V |
| C202 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C203 | 1-101-006-00 | CERAMIC | 0.047MF | | 50V |
| C204 | 1-124-122-11 | ELECT | 100MF | 20% | 16V |
| C205 | 1-126-541-11 | ELECT | 330MF | 20% | 16V |
| C207 | 1-124-122-11 | ELECT | 100MF | 20% | 16V |
| C209 | 1-101-006-00 | CERAMIC | 0.047MF | | 50V |
| C210 | 1-123-382-00 | ELECT | 3.3MF | 20% | 50V |
| C211 | 1-136-157-00 | FILM | 0.022MF | 5% | 50V |
| C212 | 1-101-006-00 | CERAMIC | 0.047MF | | 50V |
| C213 | 1-123-356-00 | ELECT | 10MF | 20% | 50V |
| C214 | 1-123-356-00 | ELECT | 10MF | 20% | 50V |
| C215 | ⚠.1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C216 | ⚠.1-102-074-00 | CERAMIC | 0.001MF | 10% | 50V |
| C217 | 1-123-356-00 | ELECT | 10MF | 20% | 16V |
| C218 | 1-126-541-11 | ELECT | 330MF | 20% | 16V |
| C219 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C220 | 1-130-994-11 | FILM | 0.033MF | 5% | 50V |
| C221 | 1-136-163-00 | FILM | 0.068MF | 5% | 50V |
| | | DIODE | | | |
| D102 | 8-719-300-80 | DIODE RU-1C | | | |
| D103 | 8-719-300-80 | DIODE RU-1C | | | |
| D104 | 8-719-300-80 | DIODE RU-1C | | | |
| D105 | 8-719-300-80 | DIODE RU-1C | | | |
| D106 | 8-719-901-19 | DIODE V11N | | | |
| D107 | 8-719-109-93 | DIODE RD6.2ES-B2 | | | |
| D109 | 8-719-911-19 | DIODE 1SS119 | | | |
| D110 | 8-719-911-19 | DIODE 1SS119 | | | |
| D111 | 8-719-109-63 | DIODE RD3.0ES-B2 | | | |
| D201 | 8-719-911-19 | DIODE 1SS119 | | | |
| D202 | 8-719-109-72 | DIODE RD3.9ES-B2 | | | |
| D203 | 8-719-911-19 | DIODE 1SS119 | | | |
| D204 | 8-719-000-28 | THYRISTOR CR02AM-8 | | | |
| D205 | 8-719-000-28 | THYRISTOR CR02AM-8 | | | |
| D206 | 8-719-911-19 | DIODE 1SS119 | | | |
| D207 | 8-719-911-19 | DIODE 1SS119 | | | |
| D214 | 8-719-918-50 | DIODE HZ12A2LTD | | | |
| D215 | ⚠.8-759-157-40 | IC UPC574J | | | |
| D216 | ⚠.8-759-157-40 | IC UPC574J | | | |
| D217 | 8-719-911-19 | DIODE 1SS119 | | | |
| D218 | 8-719-911-19 | DIODE 1SS119 | | | |
| D219 | 8-719-911-19 | DIODE 1SS119 | | | |
| D220 | 8-719-911-19 | DIODE 1SS119 | | | |
| | | IC | | | |
| IC1 | 8-759-100-75 | IC UPC1394C | | | |
| IC2 | 8-759-981-64 | IC LM2903DQ | | | |
| IC3 | 8-759-981-64 | IC LM2903DQ | | | |
| IC4 | 8-759-990-82 | IC TL082CP | | | |
| | | COIL | | | |
| L1 | 1-459-215-00 | COIL (WITH CORE) | | | |
| | | CONNECTOR | | | |
| PA1 | *1-508-765-00 | PIN, CONNECTOR (5MM PITCH) 3P | | | |
| PA2 | *1-508-766-00 | PIN, CONNECTOR (5MM PITCH) 4P | | | |
| | | TRANSISTOR | | | |
| Q101 | 8-729-105-97 | TRANSISTOR 2SA1156-2K | | | |
| Q102 | 8-729-201-62 | TRANSISTOR 2SC2555-2 | | | |
| Q103 | 8-729-202-53 | TRANSISTOR 2SD1556-LB | | | |

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

- The components identified by ⧓ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

**PA** **PB**

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| Q104 | 8-729-804-48 | TRANSISTOR 2SC3675 | | | | |
| Q105 | 8-729-804-48 | TRANSISTOR 2SC3675 | | | | |
| Q106 | 8-729-804-48 | TRANSISTOR 2SC3675 | | | | |
| Q107 | 8-729-119-80 | TRANSISTOR 2SC2688-LK | | | | |
| Q108 | 8-729-119-80 | TRANSISTOR 2SC2688-LK | | | | |
| Q109 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | | | | |
| Q110 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | | |
| Q111 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | | |
| Q112 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | | |
| Q201 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | | |
| Q202 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | | |

RESISTOR

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R101 | 1-216-347-11 | METAL OXIDE | 0.68 | 5% | 1W | F |
| R102 | 1-247-887-00 | CARBON | 220K | 5% | 1/4W | |
| R103 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R104 | 1-216-464-11 | METAL OXIDE | 18K | 5% | 2W | F |
| R105 | 1-216-359-00 | METAL OXIDE | 6.8 | 5% | 1W | F |
| R106 | 1-216-351-00 | METAL OXIDE | 1.5 | 5% | 1W | F |
| R107 | 1-216-371-00 | METAL OXIDE | 1.5 | 5% | 2W | F |
| R108 | 1-212-998-00 | FUSIBLE | 470 | 5% | 1/2W | F |
| R109 | 1-215-898-11 | METAL OXIDE | 10K | 5% | 2W | F |
| R110 | 1-202-719-00 | SOLID | 1M | 10% | 1/2W | |
| R111 | 1-202-723-00 | SOLID | 2.2M | 10% | 1/2W | |
| R112 | 1-214-937-00 | CARBON | 1M | 5% | 1/2W | |
| R113 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R114 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R115 | 1-202-719-00 | SOLID | 1M | 10% | 1/2W | |
| R116 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W | |
| R117 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R118 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R119 | 1-214-937-00 | CARBON | 1M | 5% | 1/2W | |
| R120 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R121 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R122 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R123 | 1-215-454-00 | METAL | 24K | 1% | 1/6W | |
| ⧓R124 | ⚠ | METAL | | | 1/6W | |
| R125 | 1-215-452-00 | METAL | 20K | 1% | 1/6W | |
| ⧓R126 | ⚠ | METAL | | | 1/6W | |
| R127 | 1-249-434-11 | CARBON | 27K | 5% | 1/4W | |
| R128 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | |
| R129 | 1-249-440-11 | CARBON | 82K | 5% | 1/4W | |
| R130 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R131 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R132 | 1-249-428-11 | CARBON | 8.2K | 5% | 1/4W | |
| R133 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R134 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R135 | 1-249-438-11 | CARBON | 56K | 5% | 1/4W | |
| R136 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W | |
| R137 | 1-215-461-00 | METAL | 47K | 1% | 1/6W | |
| R138 | 1-215-440-00 | METAL | 6.2K | 1% | 1/6W | |
| R139 | 1-249-424-11 | CARBON | 3.9K | 5% | 1/4W | |
| R140 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R141 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R142 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R143 | 1-215-439-00 | METAL | 5.6K | 1% | 1/6W | |
| R144 | 1-215-421-00 | METAL | 1K | 1% | 1/6W | |
| R146 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R148 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R150 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R151 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W | |
| R153 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R154 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R201 | 1-215-899-11 | METAL OXIDE | 15K | 5% | 2W | F |
| R202 | 1-215-899-11 | METAL OXIDE | 15K | 5% | 2W | F |

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R203 | 1-215-899-11 | METAL OXIDE | 15K | 5% | 2W | F |
| R204 | 1-215-899-11 | METAL OXIDE | 15K | 5% | 2W | F |
| R205 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R206 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R207 | 1-249-393-11 | CARBON | 10 | 5% | 1/4W | |
| R208 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R209 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R210 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R211 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R212 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R213 | 1-249-415-11 | CARBON | 680 | 5% | 1/4W | |
| R214 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R220 | 1-215-455-00 | METAL | 27K | 1% | 1/6W | |
| R221 | 1-215-437-00 | METAL | 4.7K | 1% | 1/6W | |
| ⧓R222 | ⚠ | METAL | | | 1/6W | |
| R223 | 1-215-486-00 | METAL | 510K | 1% | 1/6W | |
| R224 | 1-215-471-00 | METAL | 120K | 1% | 1/6W | |
| R225 | 1-215-459-00 | METAL | 39K | 1% | 1/6W | |
| R226 | 1-215-450-00 | METAL | 16K | 1% | 1/6W | |
| ⧓R227 | ⚠ | METAL | | | 1/6W | |
| ⧓R228 | ⚠ | METAL | | | 1/6W | |
| R229 | 1-215-469-00 | METAL | 100K | 1% | 1/6W | |
| R230 | 1-215-471-00 | METAL | 120K | 1% | 1/6W | |
| R231 | 1-249-415-11 | CARBON | 680 | 5% | 1/4W | |
| R232 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R237 | 1-215-455-00 | METAL | 27K | 1% | 1/6W | |
| R238 | 1-215-437-00 | METAL | 4.7K | 1% | 1/6W | |
| ⧓R239 | ⚠ | METAL | | | 1/6W | |
| R240 | 1-215-486-00 | METAL | 510K | 1% | 1/6W | |
| R241 | 1-215-471-00 | METAL | 120K | 1% | 1/6W | |
| R242 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R243 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R245 | 1-247-887-00 | CARBON | 220K | 5% | 1/4W | |
| R246 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R247 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R248 | 1-249-399-11 | CARBON | 33 | 5% | 1/4W | |
| R249 | 1-249-399-11 | CARBON | 33 | 5% | 1/4W | |
| R250 | 1-249-411-11 | CARBON | 330 | 5% | 1/4W | |

VARIABLE RESISTOR

| | | |
|---|---|---|
| RV1 | 1-237-500-21 | RES, ADJ, CERMET 1K |

TRANSFORMER

| | | |
|---|---|---|
| T1 | 1-437-078-00 | TRANSFORMER, HORIZONTAL DRIVE |
| T2 | 1-437-079-00 | TRANSFORMER, HORIZONTAL DRIVE |
| T3 | 1-439-384-11 | LOT |

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*1-617-891-11 PB BOARD
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CAPACITOR

| | | | | | |
|---|---|---|---|---|---|
| C1 | 1-130-959-00 | FILM | 0.047MF | 10% | 400V |
| C2 | 1-130-959-00 | FILM | 0.047MF | 10% | 400V |

CONNECTOR

| | | |
|---|---|---|
| PB1 | *1-508-766-00 | PIN, CONNECTOR (5MM PITCH) 4P |

RESISTOR

| | | | | | |
|---|---|---|---|---|---|
| R1 | 1-215-429-00 | METAL | 2.2K | 1% | 1/6W |
| R2 | 1-215-445-00 | METAL | 10K | 1% | 1/6W |
| R3 | 1-215-429-00 | METAL | 2.2K | 1% | 1/6W |
| R4 | 1-215-445-00 | METAL | 10K | 1% | 1/6W |

# QA QB TA TB

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| | *1-617-895-11 | QA BOARD<br>******* | |

CAPACITOR

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| C1 | 1-108-692-11 | MYLAR 0.01MF 10% 200V | |
| C2 | 1-126-235-11 | ELECT 100MF 20% 16V | |
| C3 | 1-101-004-00 | CERAMIC 0.01MF 50V | |
| C4 | 1-108-692-11 | MYLAR 0.01MF 10% 200V | |
| C5 | 1-126-235-11 | ELECT 100MF 20% 16V | |
| C6 | 1-101-004-00 | CERAMIC 0.01MF 50V | |
| C7 | 1-108-692-11 | MYLAR 0.01MF 10% 200V | |
| C8 | 1-126-235-11 | ELECT 100MF 20% 16V | |
| C9 | 1-101-004-00 | CERAMIC 0.01MF 50V | |
| C10 | 1-102-951-00 | CERAMIC 15PF 5% 50V | |
| C11 | 1-102-951-00 | CERAMIC 15PF 5% 50V | |
| C12 | 1-102-951-00 | CERAMIC 15PF 5% 50V | |

RESISTOR

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| R1 | 1-215-449-00 | METAL 15K 1% 1/6W | |
| R2 | 1-215-449-00 | METAL 15K 1% 1/6W | |
| R3 | 1-249-439-11 | CARBON 68K 5% 1/4W | |

SWITCH

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| S1 | 1-570-857-11 | SWITCH, SLIDE | |
| S2 | 1-570-857-11 | SWITCH, SLIDE | |
| S3 | 1-570-857-11 | SWITCH, SLIDE | |

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| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| | *1-618-786-11 | QB BOARD<br>******* | |

CAPACITOR

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| C1 | 1-108-692-11 | MYLAR 0.01MF 10% 200V | |
| C2 | 1-126-235-11 | ELECT 100MF 20% 16V | |
| C3 | 1-101-004-00 | CERAMIC 0.01MF 50V | |
| C4 | 1-108-692-11 | MYLAR 0.01MF 10% 200V | |
| C5 | 1-126-235-11 | ELECT 100MF 20% 16V | |
| C6 | 1-101-004-00 | CERAMIC 0.01MF 50V | |
| C7 | 1-108-692-11 | MYLAR 0.01MF 10% 200V | |
| C8 | 1-126-235-11 | ELECT 100MF 20% 16V | |
| C9 | 1-101-004-00 | CERAMIC 0.01MF 50V | |
| C10 | 1-102-951-00 | CERAMIC 15PF 5% 50V | |
| C11 | 1-102-951-00 | CERAMIC 15PF 5% 50V | |
| C12 | 1-102-951-00 | CERAMIC 15PF 5% 50V | |

RESISTOR

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| R1 | 1-215-449-00 | METAL 15K 1% 1/6W | |
| R2 | 1-215-449-00 | METAL 15K 1% 1/6W | |
| R3 | 1-215-449-00 | METAL 15K 1% 1/6W | |

SWITCH

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| S1 | 1-570-857-11 | SWITCH, SLIDE | |
| S2 | 1-570-857-11 | SWITCH, SLIDE | |
| S3 | 1-570-857-11 | SWITCH, SLIDE | |

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| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| | *1-617-898-11 | TA BOARD<br>******* | |

CONNECTOR

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| TA1 | *1-566-054-11 | PIN, CONNECTOR 2P | |
| TA2 | *1-566-055-11 | PIN, CONNECTOR 3P | |
| TA3 | *1-566-056-11 | PIN, CONNECTOR 4P | |
| TA4 | *1-566-057-11 | PIN, CONNECTOR 5P | |
| TA5 | *1-566-058-11 | PIN, CONNECTOR 6P | |
| TA6 | *1-566-055-11 | PIN, CONNECTOR 3P | |
| TA7 | *1-566-058-11 | PIN, CONNECTOR 6P | |
| TA8 | *1-566-042-11 | PIN, CONNECTOR 3P | |
| TA9 | *1-566-045-11 | PIN, CONNECTOR 6P | |
| TA10 | *1-566-045-11 | PIN, CONNECTOR 6P | |
| TA11 | *1-566-045-11 | PIN, CONNECTOR 6P | |
| TA12 | *1-508-786-00 | PIN, CONNECTOR (5MM PITCH) 2P | |
| TA13 | *1-561-337-00 | CONNECTOR, MULTI | |
| TA14 | *1-561-337-00 | CONNECTOR, MULTI | |
| TA15 | *1-561-337-00 | CONNECTOR, MULTI | |

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| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| | *1-617-899-11 | TB BOARD<br>******* | |

CONNECTOR

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| CN1 | *1-564-431-11 | POST, CONNECTOR 3P | |
| CN2 | *1-564-431-11 | POST, CONNECTOR 3P | |
| CN11 | 1-561-724-00 | SOCKET, CONNECTOR 2P | |
| CN12 | 1-561-724-00 | SOCKET, CONNECTOR 2P | |

RESISTOR

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| R100 | 1-249-422-11 | CARBON 2.7K 5% 1/4W | |

CONNECTOR

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| TB4 | *1-566-054-11 | PIN, CONNECTOR 2P | |
| TB5 | *1-566-054-11 | PIN, CONNECTOR 2P | |
| TB6 | *1-566-060-11 | PIN, CONNECTOR 8P | |
| TB7 | *1-566-054-11 | PIN, CONNECTOR 2P | |
| TB8 | *1-566-058-11 | PIN, CONNECTOR 6P | |
| TB9 | *1-566-060-11 | PIN, CONNECTOR 8P | |
| TB10 | *1-566-064-11 | PIN, CONNECTOR 12P | |
| TB11 | *1-566-055-11 | PIN, CONNECTOR 3P | |
| TB12 | *1-566-064-11 | PIN, CONNECTOR 12P | |
| TB13 | *1-566-062-11 | PIN, CONNECTOR 10P | |
| TB14 | *1-566-064-11 | PIN, CONNECTOR 12P | |
| TB15 | *1-566-060-11 | PIN, CONNECTOR 8P | |
| TB16 | *1-566-057-11 | PIN, CONNECTOR 5P | |
| TB17 | *1-566-057-11 | PIN, CONNECTOR 5P | |
| TB18 | *1-566-055-11 | PIN, CONNECTOR 3P | |
| TB19 | *1-566-056-11 | PIN, CONNECTOR 4P | |
| TB20 | *1-566-056-11 | PIN, CONNECTOR 4P | |
| TB21 | *1-566-056-11 | PIN, CONNECTOR 4P | |
| TB22 | *1-566-054-11 | PIN, CONNECTOR 2P | |
| TB23 | *1-566-054-11 | PIN, CONNECTOR 2P | |
| TB24 | *1-566-054-11 | PIN, CONNECTOR 2P | |
| TB28 | *1-566-062-11 | PIN, CONNECTOR 10P | |
| TB31 | *1-561-337-00 | CONNECTOR, MULTI | |
| TB32 | *1-561-337-00 | CONNECTOR, MULTI | |
| TB33 | *1-561-337-00 | CONNECTOR, MULTI | |
| TB34 | *1-561-337-00 | CONNECTOR, MULTI | |
| TB35 | *1-561-337-00 | CONNECTOR, MULTI | |
| TB36 | *1-561-337-00 | CONNECTOR, MULTI | |
| TB37 | *1-561-337-00 | CONNECTOR, MULTI | |
| TB38 | *1-561-337-00 | CONNECTOR, MULTI | |
| TB39 | *1-561-337-00 | CONNECTOR, MULTI | |
| TB40 | *1-561-337-00 | CONNECTOR, MULTI | |

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The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | *1-617-896-11 | V BOARD | | | |
| | | ****** | | | |
| | 1-563-265-11 | CONNECTOR, MULTIPLE 10P | | | |
| | | RESISTOR | | | |
| R1 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R2 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R3 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R4 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R5 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R6 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R7 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| ********************************************* | | | | | |
| | *1-617-897-11 | W BOARD | | | |
| | | ****** | | | |
| | | CAPACITOR | | | |
| C1 | 1-108-692-11 | MYLAR | 0.01MF | 10% | 200V |
| C2 | 1-108-692-11 | MYLAR | 0.01MF | 10% | 200V |
| C3 | 1-108-692-11 | MYLAR | 0.01MF | 10% | 200V |
| | | RESISTOR | | | |
| R1 | 1-214-702-00 | METAL | 75 | 1% | 1/4W |
| R2 | 1-214-702-00 | METAL | 75 | 1% | 1/4W |
| R3 | 1-214-702-00 | METAL | 75 | 1% | 1/4W |
| ********************************************* | | | | | |
| | *1-617-892-11 | X BOARD | | | |
| | | ****** | | | |
| | | DIODE | | | |
| D1 | 8-719-920-21 | DIODE LT-9220H | | | |
| ********************************************* | | | | | |
| | *1-617-893-11 | Y BOARD | | | |
| | | ****** | | | |
| | | DIODE | | | |
| D1 | 8-719-812-43 | DIODE TLG124A | | | |
| ********************************************* | | | | | |

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| | | MISCELLANEOUS | |
| | | *********** | |
| | ⚠1-162-142-21 | CAP BLOCK, HIGH VOLTAGE | |
| | 1-216-370-11 | RES, METAL OXIDE FILM 1.2 | |
| | 1-216-372-11 | RES, METAL OXIDE FILM 1.8 | |
| | ⚠1-237-165-12 | RESISTOR ASSY, HIGH-VOLTAGE | |
| | ⚠1-426-263-11 | COIL, DEMAGNETIZATION | |
| | ⚠1-451-287-21 | DEFLECTION YOKE (Y14FAA) | |
| | 1-452-032-00 | MAGNET, DISC ; 10MMφ | |
| | 1-452-094-00 | MAGNET, ROTATABLE DISK ; 15MMφ | |
| | ⚠1-452-117-31 | CRT NECK ASSY | |
| | ⚠1-452-261-22 | CRT NECK ASSY (362) | |
| | ⚠1-453-103-41 | HIGH-VOLTAGE BLOCK (HB-203 (C)) | |
| | ⚠1-532-203-11 | FUSE, TIME-LAG 2A/250V (BVM-1410P ONLY) | |
| | ⚠1-532-746-11 | FUSE, GLASS TUBE 4A/125V (BVM-1410PM ONLY) | |
| | ⚠1-565-791-11 | CONNECTOR, BNC 1P | |
| S901 | ⚠1-570-052-12 | SWITCH, PUSH (AC POWER) (1 KEY) | |
| T1 | ⚠1-439-382-21 | TRANSFORMER ASSY, FLYBACK | |
| V901 | ⚠8-738-052-05 | PICTURE TUBE (M34JNR21X) | |
| ********************************************* | | | |
| | | ACCESSORIS & PACKING MATERIALS | |
| | | *********************** | |
| | ⚠1-532-203-11 | FUSE, TIME-LAG 2A/250V | |
| | ⚠1-532-746-11 | FUSE, GLASS TUBE 4A/125V | |
| | ⚠1-590-150-11 | POWER CORD (BVM-1410P ONLY) | |
| | ⚠1-551-812-11 | POWER CORD (BVM-1410PM ONLY) | |
| | 1-560-776-00 | SOCKET, CONNECTOR 10P | |
| | 2-990-242-01 | HOLDER (B), PLUG | |
| | 4-312-246-00 | BAG, PROTECTION | |
| | 4-378-901-01 | KEY | |
| | 4-379-427-01 | PLATE, NUMBER, TALLY | |
| | *4-379-479-01 | CUSHION (UPPER) | |
| | *4-379-480-01 | CUSHION (LOWER) | |
| | *4-379-482-01 | SPACER | |
| | 4-379-487-11 | MANUAL, OPERATION & MAINTENANCE | |
| | *4-379-490-01 | INDIVIDUAL CARTON (BVM-1410P ONLY) | |
| | *4-379-495-01 | INDIVIDUAL CARTON (BVM-1410PM ONLY) | |
| | 7-700-731-03 | DRIVER, VR ADJUSTMENT | |
| | *A-1394-088-A | Z BOARD, COMPLETE | |
| | 1-561-337-21 | CONNECTOR, MULTI | |
| | 7-682-547-09 | SCREW BVTT 3X6 (S) | |